EUB Alberta Energy and Utilities Board

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Directive 012

Version 1.3, December 22, 2005

Alberta Tariff Billing Code

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1 General and Administrative Provisions

1.1 Purpose of the Directive

This directive sets out the Alberta Tariff Billing Code to establish the standards for communicating site-specific distribution and transmission tariff charges and usage information, as well as settlement-point-specific transmission tariff charges and usage information, relevant to calculating energy charges in a format for the operation of an efficient, fair, and openly competitive electric and natural gas market in Alberta. These obligations arise through the *Electric Utilities Act*, the *Gas Utilities Act*, and their associated regulations.

The Alberta Energy and Utilities Board (EUB/Board) has established that "bill ready" is the mandatory distributor billing process to be used in the Alberta electric utility and natural gas utility marketplaces. Under this process, the distributor calculates its tariff charges and sends these charges to the retailer. Unless mandated by legislation, the retailer has the sole discretion, within the framework provided in the regulations, to determine the manner in which tariff and energy charges are presented in a bill to its customer.

1.2 Related Codes, Regulations, and Legislation

Under the umbrella of the *Alberta Energy and Utilities Board Act*, the EUB is governed by various pieces of legislation that relate to the EUB's responsibilities with respect to utility regulation. Thus the *Electric Utilities Act* (EUA) and the *Gas Utilities Act* (GUA) provides the EUB with the power to make rules respecting service quality standards under the jurisdiction of the EUB.

The Alberta Tariff Billing Code is established by the EUB under provisions of the *Electric Utilities Act* and *Gas Utilities Act*, as amended from time to time.

The current affiliated regulations of the *Electric Utilities Act*, as they are amended from time to time, that address issues related to the sharing of tariff bill-ready information between distributors and retailers, as well as the sharing of tariff billing information between the ISO and its transmission customers, and are relevant to the Tariff Billing Code are as follows:

1) Billing Accuracy Regulation (AR 110/2003)
2) Billing Regulation, 2003 (AR 159/2003)
3) Code of Conduct Regulation (AR 160/2003)
4) Distribution Tariff Regulation (AR 162/2003)
5) Ministerial Order 71/2003 (AR 324/2003)
6) Ministerial Order 79/2003 (AR 343/2003)
7) Ministerial Order 19/2005 (AR 168/2003)
8) Regulated Default Supply Regulation (AR 168/2003)
9) Regulated Default Supply Amendment (AR 135/2004)
10) Roles, Relationships and Responsibilities Regulation, 2003 (AR 169/2003)

The current affiliated regulations of the *Gas Utilities Act*, as they are amended from time to time, that address issues related to the sharing of tariff bill-ready information between distributors and retailers and are relevant to the Tariff Billing Code are as follows:

1) Natural Gas Billing Regulation (A.R. 185)
2) Code of Conduct Regulation (A.R. 183/2003)
3) Default Gas Supply Regulation (A.R. 184/2003)

4) Roles, Relationships and Responsibilities Regulation (A.R. 186/2003)

Nothing in this code shall affect the obligation of a distributor to comply with all Measurement Canada requirements provided that, where this code prescribes a higher standard than that prescribed in those requirements, the distributor shall comply with the higher standard. The distributor has an obligation to inform the customer of the assistance provided by Measurement Canada in a dispute investigation. Measurement Canada has jurisdiction, under the federal *Electricity and Gas Inspection Act*, in a dispute between the distributor and the customer where the condition or registration of a meter or metering installation is in question. Typically, Measurement Canada will verify the accuracy of the meter and/or the metering installation, meter, and billing multipliers used and the application of the rate structures. Once Measurement Canada becomes involved, the provisions of the federal *Electricity & Gas Inspection Act* take precedence over any provincial requirements.

The Settlement System Code (SSC) provides standards for determining and communicating load responsibility for the operation of an efficient, fair, and openly competitive electricity market in Alberta. The SSC is established by the Independent System Operator (ISO) under the provisions of the *Electric Utilities Act* as amended from time to time. Distributors of electric distribution systems, retailers, regulated rate providers, distributors of transmission facilities, the ISO, and any other person involved in the delivery and exchange of electric energy in Alberta are to comply with the Settlement System Code.

1.3 Definitions

Unless otherwise indicated, the terms used in this code have the meaning given to them in the *Electric Utilities Act* as amended from time to time. Any reference to the Settlement System Code or the ISO Rules is to the version currently in effect.

In the Alberta Tariff Billing Code:

1) **"AEIS"** has the meaning ascribed to the term "AEIS" in the **ISO Rules**;
2) **"bill"** or **"billing"** means an account for charges arising from the generation, transmission, distribution or sale of electricity or natural gas;
3) **"bill ready"** means that a **retailer** is provided with all the necessary distribution and transmission tariff data elements and charges required to assemble the **customer**'s bill, with no additional calculations required other than tax calculations and optional charge aggregation;
4) **"business day"** has the meaning ascribed to the term "business day" in the **ISO Rules**;
5) **"charge period"** means a span of time delimiting the tariff charges in the tariff bill file; the charge period is limited by charge period events or tariff bill period events;
6) **"charge period event"** means a tariff billing event that splits a **charge period**;
7) **"Code"** means the Alberta Tariff Billing Code approved by the **EUB/Board** and in effect at the relevant time, which, among other things, establishes a **distributor**'s obligations and responsibilities associated with the provision of tariff charge and determinant information to **retailers**;
8) **"current billing period"** means the actual span of time elapsed from the **day** following the end date of the last published **tariff bill period** up to and including the effective date of a tariff bill file event; the **current billing period** is composed of one or more **tariff bill periods**;
9) **"customer"** has the meaning ascribed to the term "customer" in the **EUA**;
10) **"customer bill"** means an invoice presented to a **customer** reflecting tariff and energy charges;
11) **"Customer Switch Advice" (CSA)** means a physical electronic transaction initiated by a **retailer** to advise a **distributor** of a customer switch (or a termination of a contract for the provision of electric services)[1] for a specific site and results in a **tariff bill period event**;

[1] Unique circumstances for ENMAX Energy Corporation only—otherwise this event would result in an enrollment/de-enrollment transaction between retailers.

12) **"day"** has the meaning ascribed to the term "day" in the **ISO Rules**;

13) **"DCM transaction" (DCM)** means the Daily Cumulative Meter Consumption to **Retailer**/RRPs and Settlement transaction as defined in the **SSC**;

14) **"demand"** means the maximum amount of energy (kilowatt [kW] or kilovoltampere [kVA]) used at a given instance within a billing period - demand is usually presented as actual metered peak demand for a defined period, demand ratchet based on a defined percentage of historic peak demand, and contract or rate minimum demand;

15) **"DIM transaction" (DIM)** means the Daily Interval Meter Readings to **Retailers** and Settlement transaction as defined in the **SSC**;

16) **"distribution access service"** means services related to the distribution of electricity as defined by the **EUA** or natural gas as defined by the GUA;

17) **"distributor"** means the owner, operator, manager, or lessee of a gas distribution system, as defined in the GUA, or an owner, operator, manger, or lessee of an electric distribution system, as defined in the EUA.

18) **"DSM transaction" (DSM)** means the daily system measurement transaction that discloses system-level interval data;

19) **"elapsed business day"** means a period established from a point in time during a **business day** to that same point in time in the next **business day** (e.g. 12:00 PM Friday – 12:00 PM Monday);

20) **"EUA"** means the *Electric Utilities Act (Alberta)*, as amended from time to time;

21) **"EUB"** means the Alberta Energy and Utilities Board established under the *Alberta Energy and Utilities Board Act*;

22) **"exception"** means the detection of a potential error by a **retailer** in **distributor** tariff billing that requires the attention of the **retailer** and **distributor** to resolve;

23) **"file"** means a set of records containing tariff billing information in a format specified in Section 4 of this code or transmission tariff billing information in a format specified in Appendix J;

24) **"gap"** means, in respect of the tariff bill period structure, that the end date of one period and the start date of the subsequent period are not sequential;

25) **"GUA"** means the *Gas Utilities Act*, as amended from time to time;

26) **"idle"** in respect of a site, means a de-energized site with no **usage** in a **tariff bill period** but for which tariff charges apply;

27) **"ISO"** has the meaning ascribed to the term "ISO" in the **EUA**;

28) **"ISO Customer"** means a person who takes or applies to take, system access service from the **ISO**;

29) **"ISO Invoice"** means an invoice issued by the **ISO** for settlement points related to a specific customer representing tariff charges for **transmission services** and **system access services**;

30) **"meter"** has the meaning ascribed to the term "meter" in the **ISO Rules**;

31) **"meter data manager" (MDM)** has the meaning ascribed to the term "meter data manager" in the **ISO Rules**;

32) **"metering data"** has the meaning ascribed to the term "metering data" in the **ISO Rules**;

33) **"month"** has the meaning ascribed to the term "month" in the **ISO Rules**;

34) **"off-cycle tariff charges"** means the production and presentation of **tariff charges** for a specific site prior to a site's **scheduled billing cycle**;

35) **"other validation tests"** means validation tests, other than the standard file format and standard file content validation tests outlined in this code, that a **distributor** or retailer may perform, at their discretion, to validate reasonableness of data included in a tariff bill file;

36) **"overlap"** means, in respect of the tariff billing period structure, that the end date of one period is later than the start date of the subsequent period;

37) **"point of connection" (POC)** has the meaning ascribed to it in the ASEO tariff;

38) **"point of delivery" (POD)** means a conceptual point of delivery from the transmission system–a POD is the point at which energy is deemed to be delivered from the transmission system to the distribution system; a POD is a collection of one or more interval meters (metering points) aggregated according to measurement point definition records;

39) **"point of interconnection" (POI)** means a conceptual point of exchange with non-AIES control areas at transmission voltages—a POI is a collection of PODs and POSs aggregated according to a fixed formula to create a real or vital point of energy delivery or receipt from outside the transmission system;

40) **"point of supply" (POS)** means a conceptual point of supply onto the transmission system—a POS is the point at which energy is deemed to be supplied to the transmission system;

41) **"power factor"** means the power actually used by a customer, the real power (expressed in kW), as a ratio of the power that is apparently being delivered, to the apparent power (expressed kVA); the difference is attributable to the characteristics of a customer's load, which uses more apparent power to operate;

42) **"power quality"** is the comparison of a measurement of one or more electrical properties to that of a set standard (e.g., voltage, frequency or power factor);

43) **"record"** means a sequence of information in a format specified in Section 4 of this code;

44) **"regulated rate provider" (RRP)** has the meaning ascribed to the term "regulated rate provider" in the EUA;

45) **"retailer"** includes regulated rate providers, self-retailers, or their billing agents;

46) **"retailer of record"** has the meaning ascribed to the term "retailer of record" in the **ISO Rules**;

47) **"request for information"** enables a **distributor** or retailer to request information each other regarding disputed transactions or files;

48) **"scheduled billing period"** means the timeframe between scheduled meter reading or usage estimate production dates as set out by the **meter data manager** or **distributor**;

49) **"scheduled data"** means a request to schedule intertie (import/ export) energy transactions;

50) **"scheduled read date"** means the scheduled date upon which a particular **distributor**'s meter is scheduled to be read;

51) **"scheduled tariff bill file publish date"** means the specific date upon which a **distributor** is obligated to release a **tariff bill file** to **retailers**; **"service area"** has the meaning ascribed to the term in the *Hydro and Electric Energy Act*;

52) **"settlement point"** means a point defined by contract terms where one or more measurement points are totalized for the purpose of transmission tariff billing;

53) **"site"** has the meaning ascribed to the term "site" in the **ISO Rules**;

54) **"Site Cycle Catalogue" (SCF)** means a physical electronic file that provides a common format for **distributors** to disclose site and billing cycle data to a **retailer** to enable a **retailer** to cross reference sites to a **distributor's** billing cycle;

55) **"site cycle change" (SCC)** transaction provides a notification to a **retailer** of record of site cycle changes;

56) **"SRN transaction" (SRN)** means the Select Retailer Notification transaction as defined in the **SSC**;

57) **"SSC"** means Settlement System Code that is established by the **ISO** under the provisions of the **EUA**;

58) **"standard file content validation test"** means the process of validating the content of tariff billing data as contained within the **tariff bill file,** including file integrity checks, expected field values, and cross field edits;

59) **"standard file format validation test"** means the process of validating the format of the physical attributes of the tariff bill file, including field attributes and required field population;

60) **"supply"** means the maximum amount of energy (megawatt (MW)) or megavoltampere (mVA)) produced at a given instance within a billing period – supply is usually presented as actual metered energy for a defined period;

61) **"system access service"** has the meaning ascribed to the term **"system access service" in the EUA**;

62) **"system level"** is 15-minute values for distributed generation, transmission connected generation, and transmission connected load that are needed to describe the total 15-minute energy flow on the **AIES** a the transmission level;

63) **"Tariff Bill Accept" (TBA)** means a physical electronic transaction that enables a **retailer** to inform a **distributor** of positive **standard file format validation test** results and acceptance of the **tariff bill file**;

64) **"Tariff Bill Calendar" (TBC)** means a physical electronic file that provides a common format for **distributors** to disclose yearly tariff bill cycle schedules to **retailers**;

65) **"Tariff Bill Dispute" (TBD)** means a physical electronic transaction reporting a single **tariff bill file dispute**;

66) **"Tariff Bill File" (TBF)** means a physical electronic file containing site-specific tariff charges, **usage**, and **demand** information for given **tariff bill periods**; it may also contain applicable site-specific one-time charges;

67) **"tariff bill file dispute"** means a single reported incidence of a **tariff bill period** or one-time charge content exception within a tariff bill file;

68) **"tariff bill file event"** means a tariff billing event that triggers the production of a **tariff bill file** or the inclusion of a site in a **tariff bill file**;

69) **"tariff bill file rejection"** means a reported incident of a **tariff bill file** format exception;

70) **"tariff billing event"** means any event that occurs during a **scheduled billing period** for a specific site that may result in the inclusion of that site in a tariff bill file or result in a split in one or more periods within the tariff bill period structure for that site;

71) **"tariff bill period"** means the span of time bound by **tariff billing events** within which **tariff charges** are presented for a site;

72) **"tariff bill period event"** means a tariff billing event that splits a **tariff bill period**;

73) **"Tariff Bill Reject" (TBR)** means a physical electronic transaction that enables a **retailer** to inform a **distributor** of negative **standard file format validation test** results and rejection of the **tariff bill file**;

74) **"Tariff Bill Rejection Notification" (TRN)** means a physical electronic transaction that enables a **distributor** to inform a **retailer** of the status of a **Tariff Bill Reject (TBR)**;

75) **"Tariff Billing Sites Withheld" (TSW)** means a physical electronic transaction that enables a **distributor** to inform a retailer of sites withheld from presentation in a published tariff bill file in an automated fashion;

76) **"tariff charge"** is the physical representation of a charge component multiplied by a time factor (if applicable) and by a charge component unit price as published in the **distributor's** tariff;

77) **"Tariff Dispute Notification" (TDN)** means a physical electronic transaction that enables a **distributor** to inform a retailer of the status and outcome of a Tariff Bill Dispute (TBD) transaction;

78) **"transaction transport method"** has the meaning ascribed to it in the SSC;

79) **"Transmission Tariff Accept" (TTA)** means a physical electronic transaction that enables a customer to inform the ISO of positive **standard file format validation test** results and acceptance of the **transmission tariff file**;

80) **"Transmission Tariff Dispute" (TTD)** means a physical electronic transaction reporting a single **transmission tariff file dispute**;

81) **"Transmission Tariff File" (TTF)** means a physical electronic file containing settlement point specific tariff charges, **usage**, and **demand** information for given **tariff bill periods**;

82) **"transmission tariff file dispute"** means a single reported incidence of a transmission tariff file's **tariff bill period** content exception within a transmission tariff file;

83) **"transmission tariff file event"** means a tariff billing event that triggers the production of a transmission tariff file or the inclusion of a settlement point in a transmission tariff file;

84) **"transmission tariff file rejection"** means a reported incident of a transmission tariff file format exception;

85) **"Transmission Tariff Reject" (TTR)** means a physical electronic transaction that enables a customer to inform the ISO of negative standard file format validation test results and rejection of the transmission tariff file;

86) **"Transmission Tariff Rejection Notification" (TTN)** means a physical electronic transaction that enables the ISO to inform a customer of the status of a Transmission Tariff Reject (TTR);

87) **"UCI transaction" (UCI)** means the Update Customer Information transaction as defined in the **SSC**;

88) **"usage"** means the consumption (kilowatt-hour [kWh]) used by the **customer** during a period as measured by the **meter** and with multipliers applied or as estimated by a **distributor** for billing purposes;

89) **"usage period"** means a period of time expressed in terms of whole days dictated by usage period events but bound by the start and end date of an associated **tariff bill period**;

90) **"usage period event"** means a tariff billing event that splits a **usage period**;

91) **"distributor invoice"** means an invoice issued by a **distributor** for sites related to a specific **retailer** representing tariff charges for **distribution access services** and **system access services**.

1.4 Interpretations

Section headings used in this code are for convenience only and shall not affect the interpretation of this code. Words in the singular shall include the plural and vice versa. A reference to a document or a provision of a document includes any amendment, supplement to, or replacement of that document or that provision of that document. An event that is required under this code to occur on or by a stipulated day that is not a business day may occur on or by the next business day, unless otherwise stated in this code.

1.5 Application

This code sets the minimum obligations a distributor under the EUB's jurisdiction must meet to provide timely and accurate tariff bill-ready information to retailers for distribution and system access service provided by the distributor to the retailer.

In addition to the distributors, this code also applies to the ISO in its capacity of billing the ISO transmission tariff to retailers for sites that are direct customers of the ISO, to distributors that flow through the ISO transmission tariff as a component of their distribution tariff, and to all other ISO customers billed for services under the ISO tariff. ISO specific transmission tariff billing requirements are outlined exclusively in Appendix J.

Retailers that carry out the function of a regulated rate provider under the EUB's jurisdiction will be required to comply with the provisions of this code. Prior to the EUB investigating any complaint from a retailer concerning the performance of a distributor under the code, the retailer must demonstrate its compliance in accepting and exchanging tariff bill-ready information in the format set out in the code.

2 Summary of Tariff Billing Code Obligations

2.1 Present Direct Charges by Distributor

This code does not apply to a distributor invoicing a customer directly, as per Section 3 (Direct Charges by owner provisions) of the *Billing Regulation* (under the *Electric Utilities Act*), and Section 3 (Billing by gas distributor) of the *Natural Gas Billing Regulation* as amended from time to time.

2.2 Communicate with Market Participants

The following section identifies the requirements to communicate in writing with one or more market participants but leaves the method of communication at the sole discretion of the communicator.

2.2.1 Distributor-Initiated Communication

Distributors are obligated to communicate the following:

1) To the EUB
   a) Their code compliance plan and self-certification statement as prescribed in Section 6.1 and Section 7 respectively.
   b) Their usage estimation methodology and tolerance thresholds, and any changes to these. Distributor information pertaining to this subject is presented in Appendix A.
   c) Their process for attributing time to usage transactions (in particular with respect to events such as meter changes or upgrades) and how this is reported as whole days for billing purposes. Distributor information pertaining to this subject is presented in Appendix C.
   d) Their process for adjusting tariff charges that were originally based on estimated usage following receipt of measured usage. Distributor information pertaining to this subject is presented in Appendix D.
   e) Their process for adjusting tariff charges for preimplementation periods. Distributor information pertaining to this subject is presented in Appendix E.
   f) Their process for cutover to the code standards, including plans for archiving and retrieval of historical data.
   g) Standard codes relevant to a distributor's presentation of tariff bill-ready charges (as set out in Appendix B).

   Information communicated to the EUB will be made publicly available via the EUB's Web site (http://www.eub.gov.ab.ca).

2) To Retailers
   a) Changes to the tariff bill calendar within the timeframe prescribed in Table 2-1.
   b) Restatement of tariff charges as a result of unexpected metering or billing errors.
   d) Exact location of the tariff bill calendar and site cycle catalogue files on their Web site, as well as any additional information necessary to enable download of these files.
   e) Approach to cancelling/rebilling of previously sent tariff charges. Preliminary distributor information pertaining to this subject is presented in Appendix G.
   f) Ability, or limitations to their ability, to process transactions that are backdated or future-dated (e.g., CSA transaction). Preliminary distributor information pertaining to this subject is presented in Appendix H.
   g) Inability to produce a tariff bill file as per their published schedule.

h) Changes to site cycle assignments forecasted to affect the lesser of 3% or 1000 sites within an electric distributor's territory in a billing month within the timeframe prescribed in Table 2-1.

i) Changes to site cycle assignments to affect every site within a gas distributor's territory that changes billing cycles.

2.2.2 Retailer-Initiated Communication

Regulated rate providers are obligated to communicate the following:

1) To the EUB
   a) Their code compliance plan and self-certification statements as prescribed in Section 6.1 and Section 7 respectively.
   b) Their process for producing customer bills in the event that a distributor does not present tariff charges.

2) To Distributors
   a) Advance notice of pending changes in their regulated rate tariff within the timeframe prescribed in Table 2-1 of this code and according to the method reported in Appendix I to identify affected sites.

2.2.3 EUB-Initiated Communication

1) The EUB is obligated to communicate the following to distributors and retailers:
   a) changes to standard codes relevant to a distributor's presentation of tariff billing information;
   b) changes to Municipality ID information.

2.3 Understand Published Tariffs

It is the retailer of record's responsibility to be familiar with the published tariffs of each applicable distributor. In situations where a retailer receives charges from a distributor that are not included in the distributor's published tariffs, the retailer must use its own discretion in presenting these charges to its customers.

In order to provide assistance to their customers, retailers of record must also be familiar with the structure of the published tariffs of each applicable distributor and with the procedures by which tariff charges are calculated in respect of a site. In circumstances where insufficient tariff information is available to address customer concerns, a retailer may request additional information from the distributor.

The information exchange mechanisms outlined in this code are intended to support customer billing in terms of charge and charge determinant detail but are not intended to fully explain the basis for the tariff charges. While most charge determinant detail is self-explanatory, there are specific charges that will require application of provided determinants within the tariff bill file against the published tariff structure. Retailers will remain the primary point of contact to respond to inquiries and complaints from their customers about distribution services.

2.4 Publish and Maintain Tariff Bill Calendar

Distributors shall retain sole control of meter reading routes and tariff billing schedules, and they reserve the right to modify these routes and schedules from time to time.

A standardized tariff bill calendar file and site cycle catalogue file must be published on the respective distributor's external Web site to advise retailers of scheduled tariff bill file publish dates and site assignments.[2] In the absence of a market transaction to notify retailers of updates to the tariff bill calendar or site cycle catalogue files, distributors are required to update these files on the frequency prescribed in Table 2-1.

2.5 Provision of Usage Information

A distributor must report site usage in the tariff bill file by tariff bill period. Tariff bill file usage periods align scheduled billing periods and tariff bill periods and must be reconcilable to periodic usage presented in metering transactions.

Where metering data that spans the current billing period is not available, usage information will be estimated by site and reported as such in the tariff bill file. Distributors may employ their unique methods for estimating usage for the purpose of tariff billing but must file their estimation methodology and validation thresholds with the EUB (see Appendix A).

Where usage reflects metering data, distributors are obligated to validate usage according to the validation, estimation, and editing procedures prescribed in the SSC or in accordance with the gas distributor's procedures. In the case of estimated usage, distributors are obligated to validate usage according to the usage estimation validation thresholds filed with the EUB.

The stated obligation to provide usage information in the tariff bill file does not affect a distributor's obligation to report cumulative, interval, and unmetered usage as stipulated in the SSC or in accordance with the gas distributor's procedures.

2.6 Determine Tariff Charges

For each site in the distributor's service area, the distributor must calculate tariff charges, as well as applicable one-time charges, according to its EUB-approved and published tariff.

2.7 Full-Day Billing

To comply with the tariff bill file standards, distributors must present their tariff charges and usage information in terms of whole days, in accordance with the processes that they have filed with the EUB (see Appendix C). The consequence of this obligation is that only one tariff rate code per site may be presented in a full day.

2.8 Presentation of Dates

In the production and presentation of the tariff bill file and associated transactions, data are disclosed according to date ranges. To comply with the tariff bill file standards, in all cases the start and end dates must be expressed as inclusive and inclusive respectively.

2.9 Validate at Source

Distributors are obligated to validate tariff bill files according to the standard file format and file content validation tests prescribed within this code, as well as perform other file validation tests, prior to the transmission of tariff bill files to retailers. Distributors are to withhold, in whole or in part, tariff bill files until these files pass the required validation tests.

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[2] Distributors must make the tariff bill calendar file and site cycle catalogue file available on their respective Web sites for automated download (i.e., via FTP) by retailers and must provide retailers with the information necessary to download this information. Distributors may at their discretion transmit these files to retailers via the industry standard transport method.

2.10 Present Tariff Charges to Retailers

Tariff charges must be tied to scheduled billing periods and sent to retailers according to the distributor's published tariff bill calendar, except in the case of off-cycle billing or sites withheld from presentation due to standard file content validation test or other distributor validation test failures.

When metering data that span the current billing period are not available, tariff charges will be presented in a tariff bill file according to the file format specified within this code on or before the scheduled tariff bill file publish date based on estimated usage.

In the case that metering data for a particular site are available but failed meter data manager validation (see Appendix B of the SSC or the gas distributor's metering procedures), that particular site will be included in a tariff bill file on the scheduled tariff bill file publish date and reflect estimated usage for that site.

Tariff charges must be presented according to the tariff bill file production rules, as outlined in this code, to distinguish current billing period charges from prior period billing adjustments.

2.11 Present Tariff Charges on Customer Bills

In fulfilling their billing obligation under the EUA or GUA, retailers that carry out the function of a regulated rate provider under the EUB's jurisdiction are obligated to validate tariff bill files according to the standard file format and file content validation tests prescribed within this code, as well as perform other validation tests. Following tariff bill file validation, retailers are obligated to mediate any validation failures prior to presenting tariff charges on a customer bill.

2.12 Link Tariff Billing to Distributor Invoicing

Prior to finalizing tariff charges on a distributor's invoice, a distributor must provide time, as prescribed in Table 2-1 of this code, to enable a retailer to take receipt of a tariff bill file, perform standard file format validation tests, and notify the distributor of test results. Upon receipt of notification from a retailer transmitting a TBA or TBR transaction, or the expiry of the prescribed timeframe, a distributor is obligated to fulfill its processing responsibilities as prescribed in Section 3.1 of this code. If the distributor receives notification of positive test results, does not receive negative test results within the prescribed timeframe as stated in Table 2-1 of this code, or determines that negative test results are invalid, the distributor may proceed with distributor invoicing.

To enable retailers to perform reconciliation between tariff billing and distributor invoice processing, a distributor must include in its distributor invoice a cross-reference to the tariff bill files (i.e. Record ID of tariff bill file header record) relating to that invoice. Tariff charges not attributable to a site, or in cases where the current retailer was not the retailer of record for the period of time in which the charges occurred, will not be included in a tariff bill file and will be presented as a separate charge, accompanied by supporting detail, in the distributor's invoice or in another invoice. A tariff bill file is limited to one retailer and may only contain information for the periods when the recipient retailer is the retailer of record.

2.13 Adjust Tariff Charges Based on Usage Estimates

Following a period where tariff charges were based on estimated usage (other than usage estimates provided by the meter data manager function as per Appendix B, Section 3.2.4, of the SSC or in accordance with the gas distributor's procedures) and actual usage is available, a distributor may provide corrected charges based on actual usage. A distributor may apply a net correction or cancel/rebill approach based on its current operating practices. Each distributor must, however, file its approach for correcting usage estimates following receipt of actual usage information with the EUB (see Appendix D).

2.14 Monitor Performance

The market participants to whom this code applies (see Section 1.5) are required to

1) structure their tariff billing processes and systems in a manner that allows them to achieve the time-based performance requirements outlined in Table 2-1; and
2) monitor their performance of code obligations against the metrics presented in Table 2-2 and provide monthly performance results to the EUB on a quarterly basis. The process and form for reporting performance results to the EUB are established outside of this code.

Table 2-1. Performance Requirements

Table Ref ID	Requirement	Measure	Responsibility	Target
1	Tariff bill file publication timing	Number of days between the scheduled read date and the scheduled tariff bill file published date for a bill cycle, as stated in the tariff bill calendar file.	Distributor	Maximum: 6 business days
2	Off-cycle billing timing	Number of days between the effective timing of an off-cycle billing (tariff bill file) and the inclusion of that site in a tariff bill file.	Distributor	Maximum: 6 business days
3	Standard file format validation timing	Number of business days following receipt of a tariff bill file to complete standard file format validation tests and transmit a TBA or TBR transaction.	Retailer	Maximum: 1 elapsed business day
4	File rejection response timing	Number of business days following receipt of a TBR transaction to transmit a TRN (accept or reject) transaction.	Distributor	Maximum: 1 elapsed business day
5	File rejection resolution timing	Number of business days following transmittal of a TRN (accept) transaction to transmit a replacement tariff bill file.	Distributor	Maximum: 1 elapsed business day, excepting system failures[3]
6	Standard file content validation timing	Number of business days following receipt of a tariff bill file to complete standard file content validation tests and transmit a TBD transaction(s).	Retailer	Maximum: 2 elapsed business days
7	Dispute response timing	Number of business days following receipt of a TBD transaction to notify a retailer of acceptance or rejection of the dispute.	Distributor	Minimum: 1 elapsed business day Mean: 2 elapsed business days for 95% of disputes Maximum: 5 elapsed business days
8	Dispute resolution timing	Number of business days following receipt of a TBD transaction to resolve the dispute by transmitting a cancel and/or rebill, provided that the TBD transaction was accepted.	Distributor	Minimum: 1 elapsed business day Mean: 5 elapsed business days for 95% of disputes Maximum: by next scheduled bill file publish date for the site
9	Billing Cycle Change Notice	Number of calendar days notice provided prior to republication of a distributor's current tariff bill calendar file or publication of a distributor's tariff bill calendar to cover a new billing period.	Distributor	Minimum: 90 Calendar Days.
10	Billing cycle change notice	Number of calendar days notice provided prior to effective bill cycle adjustments, as presented in the tariff bill calendar file.	Distributor	Minimum: 90 calendar days
11	Site cycle catalogue update frequency	Frequency with which the site cycle catalogue file must be updated provided site cycle changes have occurred.	Distributor	Each business day

[3] System is unable to produce a tariff bill file output or experiences large-scale file validation failures.

Table Ref ID	Requirement	Measure	Responsibility	Target
12	Electric Site cycle change notice	Notification period if the lesser of 3% or 1000 sites within a electric distributor's territory are forecasted to change billing cycles in a given billing month.	Electric Distributor	Minimum: 30 calendar days
13	Gas Site cycle change notice	Notification period for every site within a gas distributor's territory that changes billing cycles.	Gas Distributor	Minimum: 20 calendar days
14	Bill production timing for withheld sites	Number of business days required to transmit a site's charges in an off-cycle tariff bill file for a site that was previously withheld from its scheduled tariff bill file.	Distributor	Minimum: 1 elapsed business day Mean: 5 elapsed business days for 95% of sites Maximum: within two billing cycles (i.e., by the next following scheduled tariff bill file publish date for that site)
15	Scheduled RRT Energy Rate Price Change Notice	Number of calendar days, prior to effective date of price change, to publish the RRT price change calendar.	Retailer	60 calendar days
16	UCI transmission timing	Number of business days following transmittal of a CSA transaction to transmit a UCI transaction.	Retailer	Maximum: 1 elapsed business day
17	Distributor Standard Code Change Notice	Number of business days notice provided prior to effective date of 'Tariff Cross-Reference Code', 'Component Category Code' and 'One-Time Charge Code'.	Distributor	Minimum: 5 elapsed business days

Table 2-2. Performance Monitoring Metrics

Table Ref ID	Metric	Measure	Responsibility	Target
1	Currency of tariff bill file content	Percentage of all sites published in a tariff bill file with a site production reason code of "2020 - Regular Bill Cycle", where the number of business days from the current bill period end date for a site to the tariff bill file date created is equal to or less than 8 business days. Formula: Number of sites with a site production reason code of "2020 – Regular Bill Cycle", where the tariff bill file date created minus the current bill period end date for that site is equal to or less than 8 business days, divided by the total number of sites with that same site production reason code in the tariff bill file.	Distributor	95% of sites
2	File completeness	Percentage of sites assigned to a bill cycle transmitted in a tariff bill file on the cycle's scheduled tariff bill file publish date as stated in the tariff bill calendar file. Formula: Number of sites assigned to a bill cycle included in a tariff bill file divided by the total number of sites assigned to that bill cycle.	Distributor	98% of sites
3	One-time charge alignment	Percentage of one-time charges presented within the current billing period Formula: Number of one-time charges presented with a charge date that is greater than or equal to the start date and less than or equal to the end date of the current billing period divided by the total number of one-time charges per calendar month.	Distributor	95% or more
4	Reported file rejections	Count of TBR transactions produced by a retailer per distributor per calendar month. Formula: Count of TBR transactions produced by a retailer per distributor per calendar month.	Retailer	0 per distributor per month

Table Ref ID	Metric	Measure	Responsibility	Target
5	Invalid file rejections	Count of TRN (reject) transactions produced by a distributor per retailer per calendar month. Formula: Count of TRN (reject) transactions produced by a distributor per retailer per calendar month.	Distributor	0 per retailer per month
6	Reported tariff bill file disputes	Number of TBD transactions produced per distributor per calendar month. Formula: Count of TBD transactions produced per distributor per calendar month.	Retailer	To be determined following a 3-month monitoring window
7	Reported tariff bill period disputes	Number of tariff bill periods disputed per distributor per calendar month. Formula: Count of distinct tariff bill periods disputed based on TBD transactions produced per distributor per calendar month.	Retailer	To be determined following a 3-month monitoring window
8	Invalid file disputes	Count of TBD transactions that have been rejected by a distributor per retailer per calendar month. Formula: Count of TBD transactions that have been rejected by a distributor per retailer per calendar month.	Distributor	0 per retailer per month
9	Occurrences of invalid UCI to support CSA	Count of occurrences where a distributor did not receive a UCI within one business day of CSA receipt reporting appropriate changes to customer information. Formula: Count of CSA transactions not accompanied by a valid UCI (SSC rules and customer information must change) within one business day following receipt of the CSA per retailer per calendar month.	Distributor	0 per retailer per month

3 Tariff Bill-Ready Model

This section of the code defines the process, data flow, procedural steps, and roles and responsibilities to support bill-ready customer bill production. The business transactions referred to in this section are further discussed in Section 4.

3.1 Customer Billing Process Flow

The process flow illustrated below depicts the activities that may take place on a regular cycle basis in the generation of tariff charges by a distributor and production of a customer bill by a retailer following successful site creation, enrollment, and energization.

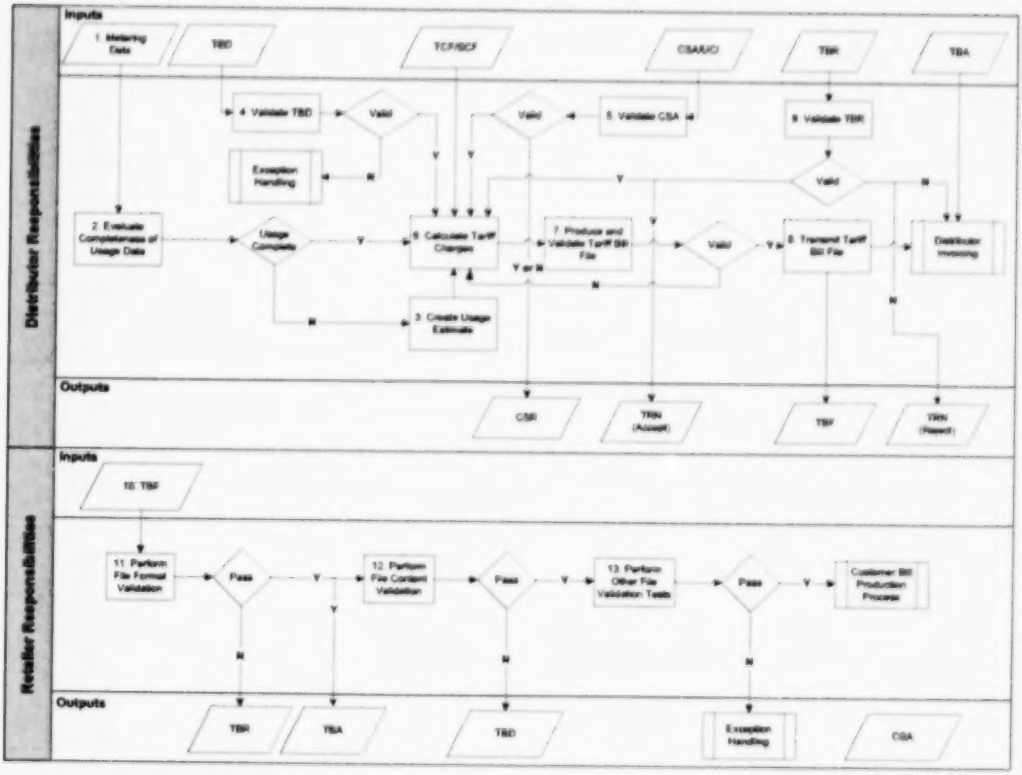


Figure 3-1. Customer Billing Process Flow

The following sections provide a description of distributor and retailer responsibilities with respect to performing procedural steps outlined in Figure 3-1. Each step corresponds to the numbered item in the figure.

3.1.1 Distributor Responsibilities

Distributors are responsible for performing the following procedural steps:

1) The metering data manager function submits metering transactions based on the scheduled read date or as required.
2) The distributor evaluates the availability and completeness of usage information spanning the current billing period for each site in the scheduled bill cycle.

a) If step 1 provides metering data for a particular site, the distributor determines the tariff bill period end date for that site and proceeds to step 6.
b) If step 1 does not provide metering data for a particular site (due to metering data validation failure or a missed read) or actual metering data spanning the scheduled billing period are not available, the distributor proceeds to step 3 and estimates usage information for that site.

3) If actual metering data spanning the scheduled billing period are not available, usage information is estimated for the appropriate tariff bill periods in accordance with a distributor's usage estimation process (see Appendix A).
4) If the distributor receives a TBD transaction, the distributor shall assess the validity of the dispute.
   a) If the TBD transaction is valid, the distributor proceeds to step 6.
   b) If the TBD transaction is not valid, the distributor will proceed with the exception handling process.
5) If the distributor receives a CSA transaction, the distributor shall assess the validity of the customer switch according to standard CSA validation rules.
   a) If the CSA transaction is valid, the distributor sends a CSR transaction notifying the retailer of CSA acceptance and the distributor proceeds to step 6.
   b) If the CSA transaction is not valid, the distributor sends a CSR transaction notifying the retailer of CSA rejection.
6) The distributor calculates tariff charges for each site according to the distributor published tariff bill calendar file and site cycle catalogue file, except for tariff billing events that trigger the production of off-cycle tariff charges.
7) The distributor produces and validates the tariff bill file according to tariff bill file validation tests and other validation tests.
   a) If the tariff bill file produced in step 7 passes standard file format, standard file content, and other distributor validation tests, the distributor proceeds to step 8.
   b) If the tariff bill file produced in step 7 fails standard file format, file content, and other distributor validation tests, the distributor either
      i) withholds the entire tariff bill file due to file format failures, or
      ii) withholds from presentation the site(s) and associated charges from the published tariff bill file that failed these validation tests.
8) The distributor electronically transmits the complete tariff bill file to the retailer. If the distributor does not receive a TBA or TBR transaction within the timeframe prescribed in Table 2-1, the distributor may proceed with the production of distributor invoices according to the provisions outlined in Section 2.12.
9) If the distributor receives a TBR transaction within the timeframe prescribed in Table 2-1, the distributor shall assess the validity of the rejection according to the standard file format validation tests in Section 5.2.
   a) If the TBR transaction is valid, the distributor sends a TRN transaction notifying the retailer and proceeds to step 6.
   b) If the TBR transaction is not valid, the distributor sends a TRN transaction notifying the retailer and then may proceed with the production of distributor invoices according to the provisions outlined in Section 2.12.

3.1.2 Retailer Responsibilities

Retailers may, at their discretion, perform the following procedural steps:

10) Retailer receives a tariff bill file from a distributor.
11) Retailer performs standard file format validations according to the procedural steps in Section 5.1.1.

a) If step 11 results in a single validation failure, the retailer rejects the tariff bill file and sends a TBR transaction to the distributor indicating the basis for the rejection via a standard rejection code.
b) If step 11 results in no validation failures, the retailer must send a TBA transaction to the distributor to indicate acceptance of the tariff bill file and then proceeds to step 12.

12) Retailer performs standard file content validations according to the procedural steps in Section 5.3.
a) If step 12 results in no validation failures, the retailer proceeds to step 13.
b) If step 12 results in one or more validation failures, the retailer sends a TBD transaction to the distributor to indicate the tariff bill file records under dispute and report the basis for the dispute via a standard dispute code. The retailer then proceeds to step 13 for those sites that passed standard file content validation.

13) Retailer performs other validation tests according to internal processing or business rules:
a) If step 13 results in no internal validation failures, the retailer proceeds with customer bill production.
b) If step 13 results in one or more internal validation failures, the retailer may, at its discretion, dispute the data with a distributor through an exception handling process, but otherwise proceeds with customer bill production.

If a retailer does not transmit a TBA or TBR transaction within the prescribed timeframe as stated in Section 2.14, the distributor may proceed with the production of a distributor invoice according to the provisions in Section 2.11.

3.2 Tariff Billing Events

Distributors must present tariff charges to a retailer within a tariff bill file according to specific tariff billing events that occur during the scheduled billing period.

Table 3-1 outlines the tariff billing events that a distributor must apply in the production of a tariff bill file. Tariff billing events qualify as one or more of the following:

1) A tariff bill file event triggering the production of a tariff bill file or the inclusion of a site in a tariff bill file on a day other than the day dictated by the tariff bill calendar.
2) A tariff bill period event triggering the start or end date of a tariff bill period.
3) A usage period event triggering the start or end date of a usage period.
4) A charge period event triggering the start or end date of a charge period.[4]

Table 3-1 further characterizes tariff billing events in the following terms:

1) **M** (mandatory) indicates that the tariff billing event will trigger that event;
2) **O** (optional) indicates that the tariff billing event may optionally trigger that event;
3) **N** (not qualified) indicates that the tariff billing event does not qualify as a trigger for that event.

Where tariff billing events coincide on the same day, neither takes precedence over the other(s) in so far as all events qualifying as mandatory must be incorporated in tariff bill file production. For example: if a change in site status occurs on the same day as an MDM metering output, a tariff bill period event, usage period event, and charge period event are deemed to have occurred.

[4] A charge period event should result in a universal split of all charge records, irrespective of charge component (combination of tariff cross-reference code, component category code, component type code, component basis code and step number). However, due to system limitations, FortisAlberta cannot universally split charge component records as a result of a charge period event.

Table 3-1. Tariff Billing Events

Table Ref ID	Tariff Billing Event	Description	Tariff Bill File Event	Tariff Bill Period Event	Usage Period Event	Charge Period Event
1	Regular Bill Cycle	One of the following events has occurred: • The close of a scheduled bill period has resulted in the generation of estimated usage. • A valid meter read spanning 27 days or more and less than or equal to the number of days in the scheduled bill period is received.	M	M	M	M
2	Enrollment (following initial site creation)	Initial enrollment following site creation	N	O	O	O
3	Enrollment (following retailer switch)	Enrollment of a site following transfer of ownership	N	M	M	M
4	De-enrollment	The de-enrollment of a site as a result of • a transfer of ownership, or • cessation of ownership (presalvage).	M	M	M	M
5	Customer Switch	A CSA is sent from a retailer to a distributor as a result of one of the following: • Customer move in/ move out • Retailer terminates a contract for provision of electric services.[5]	M	M	M	M
6	Missing Site	A site was missing from the original tariff bill file as a result of the following: • Site withheld from tariff bill file production due to failure of standard file or content validation tests.	M	N	N	N
7	Accepted Tariff Billing Dispute (most recently billed period)	A distributor presents adjustments as a result of disputed tariff billing information from a retailer for the most recently billed period.	M	N	N	N
8	Accepted Tariff Billing Dispute (prior period)	A distributor presents adjustments as a result of resolution of a disputed tariff bill period arising from a prior billing period, or resolution of a disputed one-time charge irrespective of billing period.	O	N	N	N
9	Change in Site Status	• A change in a site's status has occurred as a result of one of the following: Site is energized/de-energized. • Site changes to idle.	N	M	M	M
10	MDM Metering Output	A DCM transaction is published by the MDM function.	N	O	M	O
11	Off-cycle Meter Read	An off-cycle meter read occurs as a result of one of the following: • Retailer requested. • Distributor initiated. • Missing / late meter read. • Customer supplied.	N	O	M	O

[5] Unique circumstances for ENMAX Energy Corporation only – otherwise termination of electric services results in an enrollment/ deenrollment transaction between retailers.

Table Ref ID	Tariff Billing Event	Description	Tariff Bill File Event	Tariff Bill Period Event	Usage Period Event	Charge Period Event
12	Equipment Change	One of the following equipment changes has occurred: • Physical meter change. • Meter multiplier change (electric only). • Transformer change (electric only). • Auxiliary device change (gas only).	N	O	M	O
13	Distribution or Transmission Tariff Price Change (energy based charges)	A distribution tariff price change has occurred affecting energy based charges, having a component basis code of 'E', as a result of one of the following: • Change in tariff structure. • Change in tariff pricing. • Addition of a rate rider.	N	O	M	M
14	Distribution or Transmission Tariff Price Change (non-energy based charges)	A distribution tariff price change has occurred affecting non-energy based charges, having a component basis code not equal to 'E', as a result of one of the following: • Change in tariff structure. • Change in tariff pricing. • Addition of a rate rider.	N	O	O	M
15	RRT Energy Rate Price Change	An RRT energy rate price change has occurred as a result of the following: • Changes in a regulated rate tariff(s).	N	O	M	O
16	Rate Code Change	A rate code change has occurred as a result of one of the following: • Rate code change resulting from a change in site characteristics. • Light type change (electric only). • Connect demand change (electric only). • Tariff contract change (electric only). • Franchise area change. • Profile class change.	N	M	M	M
17	Changes to Totalized Sites	The addition or removal of a meter or socket to or from a totalized site.	O	M	M	M
18	Change in Demand Contract	Termination or other change in a site's contracted demand	N	O	O	O

Note that an MDM metering output that presents usage information spanning 27 days or more but less than the end date of the scheduled billing period will effectively shorten the scheduled billing period.

3.3 Tariff Billing Period Structure

The tariff billing period structure supports disclosure of tariff charges and related determinants according to unique periods of time. Section 3.2 describes the tariff billing events that trigger breaking any of these periods into smaller spans of time.

Starting with the scheduled billing period and culminating with the charge period, the following sub-sections explain the components of the tariff bill period structure and the relationships that exist between them. Figure 3-2 illustrates the tariff bill period structure.

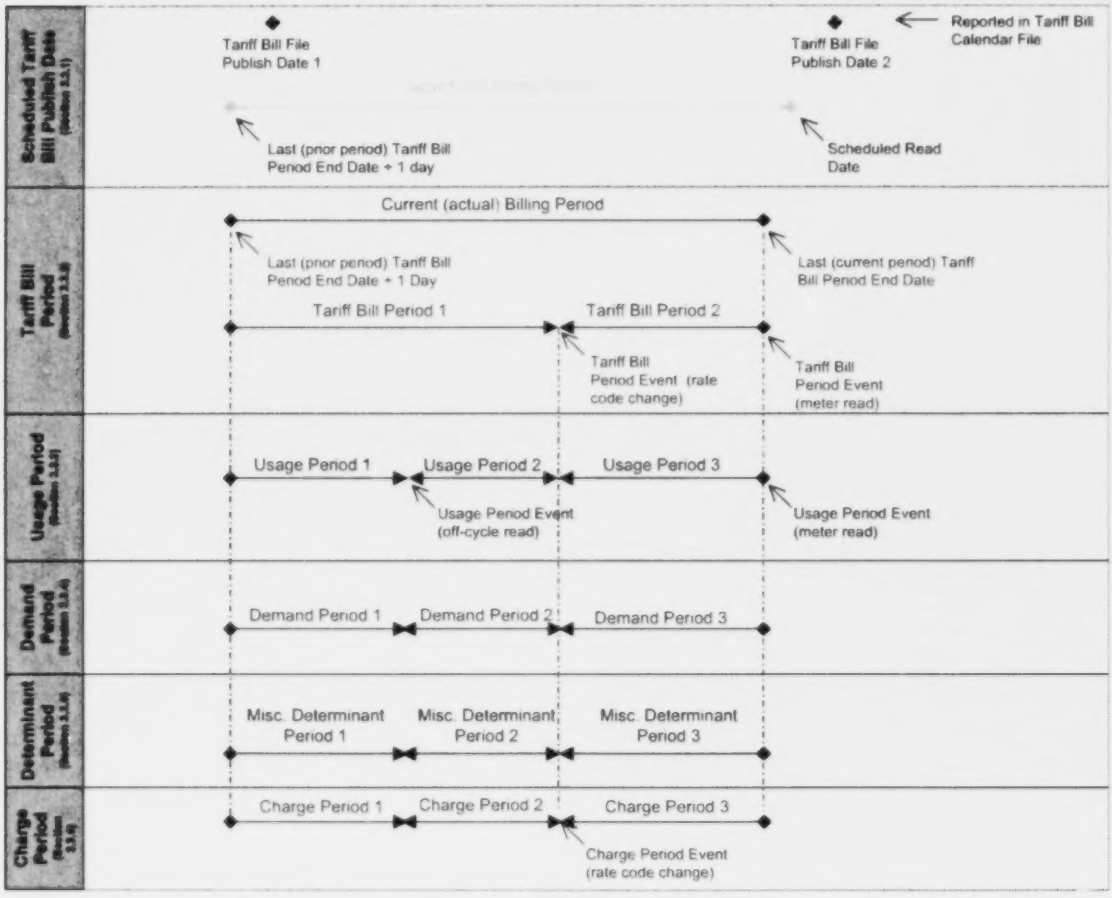

Scheduled Tariff Bill Publish Date
Tariff Bill File Publish Date 1
Tariff Bill File Publish Date 2
Reported in Tariff Bill Calendar File
Last (prior period) Tariff Bill Period End Date + 1 day
Scheduled Read Date
Tariff Bill Period
Current (actual) Billing Period
Last (prior period) Tariff Bill Period End Date + 1 Day
Last (current period) Tariff Bill Period End Date
Tariff Bill Period 1
Tariff Bill Period 2
Tariff Bill Period Event (rate code change)
Tariff Bill Period Event (meter read)
Usage Period
Usage Period 1
Usage Period 2
Usage Period 3
Usage Period Event (off-cycle read)
Usage Period Event (meter read)
Demand Period
Demand Period 1
Demand Period 2
Demand Period 3
Determinant Period
Misc. Determinant Period 1
Misc. Determinant Period 2
Misc. Determinant Period 3
Charge Period
Charge Period 1
Charge Period 2
Charge Period 3
Charge Period Event (rate code change)

Figure 3-2. Tariff Bill Period Structure

3.3.1 Scheduled Tariff Bill Publish Date

As stated in Section 2.4, distributors will publish a tariff bill calendar and site cycle catalogue. A retailer can align customer bill production for each site according to the tariff bill publish date for a bill cycle reported in the tariff bill calendar file and a site's tariff bill cycle reported in the site cycle catalogue file. The scheduled tariff bill file publish date in combination with the end date of the last tariff bill period received in a previous tariff bill file enables a retailer to infer the scheduled billing period for any one of its sites.

3.3.2 Tariff Bill Period

The tariff bill period refers to a span of time bound by tariff billing events (e.g., site enrollment or a rate code change, as described in Table 3-1) within which tariff charges are presented for a site.

Starting with the scheduled billing period and culminating with the charge period, the following sub-sections explain the components of the tariff bill period structure and the relationships that exist between them. Figure 3-2 illustrates the tariff bill period structure.

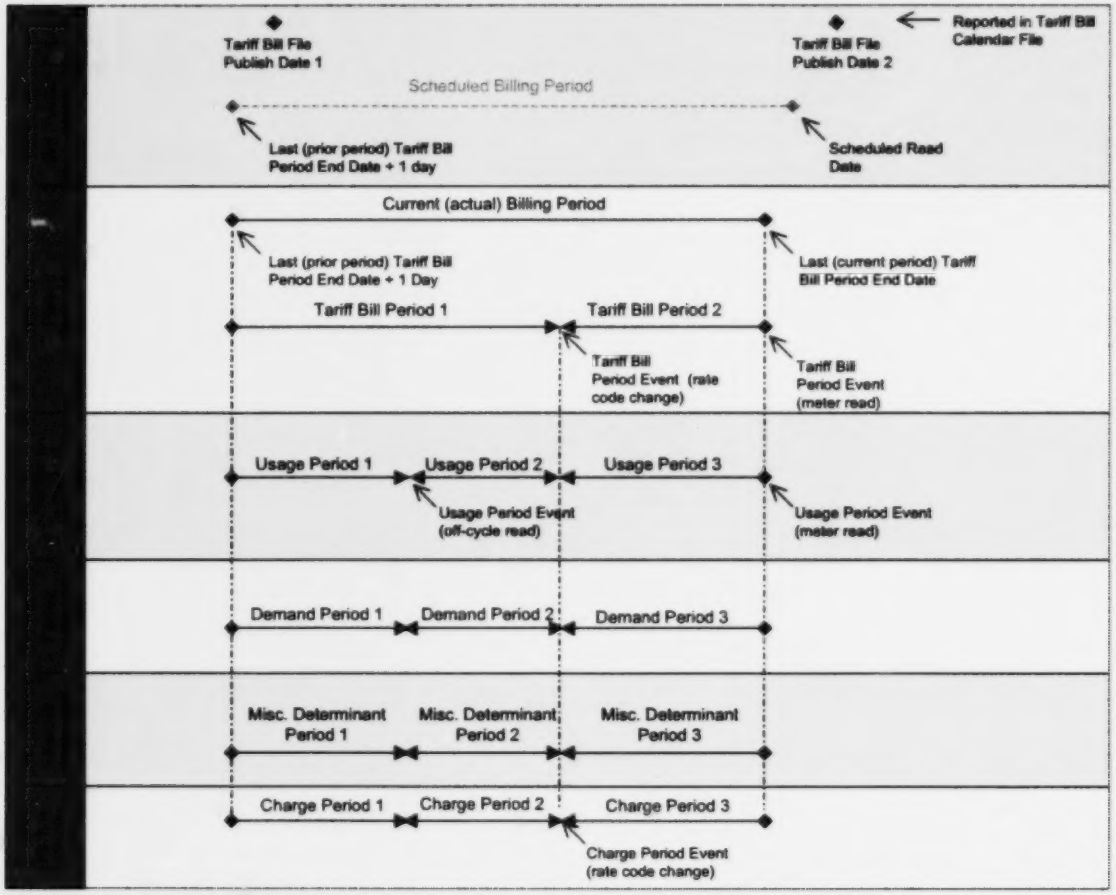

Tariff Bill File Publish Date 1
Tariff Bill File Publish Date 2
Reported in Tariff Bill Calendar File
Scheduled Billing Period
Last (prior period) Tariff Bill Period End Date + 1 day
Scheduled Read Date
Current (actual) Billing Period
Last (prior period) Tariff Bill Period End Date + 1 Day
Last (current period) Tariff Bill Period End Date
Tariff Bill Period 1
Tariff Bill Period 2
Tariff Bill Period Event (rate code change)
Tariff Bill Period Event (meter read)
Usage Period 1
Usage Period 2
Usage Period 3
Usage Period Event (off-cycle read)
Usage Period Event (meter read)
Demand Period 1
Demand Period 2
Demand Period 3
Misc. Determinant Period 1
Misc. Determinant Period 2
Misc. Determinant Period 3
Charge Period 1
Charge Period 2
Charge Period 3
Charge Period Event (rate code change)

Figure 3-2. Tariff Bill Period Structure

3.3.1 Scheduled Tariff Bill Publish Date

As stated in Section 2.4, distributors will publish a tariff bill calendar and site cycle catalogue. A retailer can align customer bill production for each site according to the tariff bill publish date for a bill cycle reported in the tariff bill calendar file and a site's tariff bill cycle reported in the site cycle catalogue file. The scheduled tariff bill file publish date in combination with the end date of the last tariff bill period received in a previous tariff bill file enables a retailer to infer the scheduled billing period for any one of its sites.

3.3.2 Tariff Bill Period

The tariff bill period refers to a span of time bound by tariff billing events (e.g., site enrollment or a rate code change, as described in Table 3-1) within which tariff charges are presented for a site.

The start date of a tariff bill period is equivalent to the later of
1) the end date of a previous tariff bill period contained within the current or a prior tariff bill file plus one day, or
2) the date of a tariff bill period event such as a new site enrollment (as described in Table 3-1).

The end date of a tariff bill period is equivalent to the earlier of
1) the effective date of a tariff bill period event (as described in Table 3-1), or
2) the date of the regular bill cycle denoting the end of a scheduled billing period.

Each tariff bill period within a tariff bill file establishes the boundaries within which usage must be allocated and/or tariff charges presented. However, a single site may require more than one tariff bill period to span the timeframe established by the end date (plus one day) of the last tariff bill period presented for that site and the end date of that site's scheduled billing period. Consequently, a series of one or more continuous tariff bill periods, excluding cancel/rebills, is referred to as the current billing period and should normally span no more than thirty-five (35) days or fewer than twenty-seven (27) days, with the exception of the following:
1) presentation of a site resulting from tariff billing events that trigger off-cycle billing.
2) presentation of a site on cycle having an irregular bill period as indicated by the Irregular Bill Period Type Code being populated with a code other than 9000 in a distributor's published tariff bill calendar file,
3) presentation of a site on cycle that spans multiple scheduled billing periods,
4) presentation of a site on cycle based on an elongated read[6], or
5) presentation of a site on cycle based on an abnormally short read[7], or
6) presentation of a new or existing site on cycle that has been enrolled during the scheduled billing period.

3.3.3 Usage Period

A usage period refers to a whole day span of time bound by the effective timing of usage period events (such as a scheduled or off-cycle meter read) where usage is determined for a site. A single tariff bill period may require more than one usage period to span the timeframe established by the tariff bill period start and end dates.

3.3.4 Demand Period

The demand period represents a period of time expressed in terms of whole days and is bound by the start and end date of an associated tariff bill period in the case of all types of demand. A single tariff bill period may require more than one demand period to span the timeframe established by the tariff bill period start and end dates.

3.3.5 Miscellaneous Determinant Period

The miscellaneous determinant period represents a period of time expressed in terms of whole days and is bound by the start and end dates of an associated tariff bill period.

[6] Elongated reads can occur on an exception basis as a result of an actual read occurring before, but within the tolerable range of, the scheduled read date, and the next read occurring more than 35 days later, and within the tolerable range of the next scheduled read date, for a particular site.
[7] Abnormally short reads can occur on an exception basis as a result of actual read occurring after, but within the tolerable range of, the scheduled read date, and the next read occurring less than 27 days later, and within the tolerable range of the next scheduled read date, for a particular site.

3.3.6 Charge Period

The charge period refers to a span of time bound by the effective timing of charge period events (such as a rate code change or distribution or transmission tariff price change) and is aligned to the tariff bill period start and end dates.

4 Information Exchange

This section of the code defines business transaction standards that apply to the exchange of tariff billing information between a distributor and a retailer to support bill-ready customer bill production and the business rules that govern the production and use of these transactions.

4.1 Information Exchange

The standards presented in the following sections are intended to be as specific as practical to facilitate data exchange between distributors and retailers. At the same time, the EUB recognizes that problems or issues may arise with individual market participants during system implementation and/or changes in market structure that would necessitate an adjustment to the standards. The EUB may consider revising these standards upon presentation of a documented need to do so by a market participant. The EUB may also grant a market participant a temporary exemption (as prescribed in Section 6.1) from these standards, provided that the deviation from the standards is necessary and reasonable and the resulting effect on the operation of the market is minimal.

4.1.1 Electronic Tariff Bill File and Associated Transactions

The standard tariff bill file and the associated transactions required to support the tariff billing process are listed in Table 4-1. All transactions listed in the table that require electronic transmittal between retailer and distributor are to be sent by way of the standard gas and electric utility industry transaction transport method for electronic data exchange.

Table 4-1. Tariff Bill File and Associated Transactions

Table Ref ID	Tariff Billing Activity	Relationship	File/Transaction	Electronic Transmittal Required?
1	Provide Tariff Billing Data	Distributor to retailer	Tariff Bill File (TBF)	✓
2	Acknowledge Receipt and Validity of Tariff Bill File	Retailer to distributor	Tariff Bill Accept Transaction (TBA) Tariff Bill Reject Transaction (TBR)	✓ ✓
3	Provide Tariff Bill Reject Transaction Status	Distributor to retailer	Tariff Bill Reject Notification Transaction (TRN)	✓
4	Dispute Tariff Bill File Data	Retailer to distributor	Tariff Bill Dispute Transaction (TBD)	✓
5	Provide Bill Cycle Data	Provided on distributor Web site (optionally distributor may send to retailer)	Tariff Bill Calendar File (TCF) Site Cycle Catalogue File (SCF)	Optional Optional
6	Provide Customer Switch Notification	Retailer to distributor	Customer Switch Advice Transaction (CSA)	✓
7	Provide Customer Switch Status	Distributor to retailer	Customer Switch Receipt Transaction (CSR)	✓
8	Disclose Municipality ID	EUB to market participants	Municipality ID File (MID)	Optional
9	Disclose Distributor Specific Tariff Cross Reference Codes	Distributor to market participants	Tariff Cross Reference Code File (TRF)	Optional
10	Disclose Distributor Specific Component Type Codes	Distributor to market participants	Component Type Code File (CTF)	Optional
11	Disclose Distributor Specific One-Time Charge Codes	Distributor to market participants	One-Time Charge Code File (OCF)	Optional

Table Ref ID	Tariff Billing Activity	Relationship	File/Transaction	Electronic Transmittal Required?
12	Disclose Distributor specific Miscellaneous Determinant Codes	Distributor to market participants	Miscellaneous Determinant Code File (MDF)	Optional
13	Disclose Tariff Rate Code	Distributor to market participants	Tariff Rate Code File (TRC)	Optional

4.2 Tariff Bill File Structure

The tariff bill file presents site-specific distribution and transmission tariff charges, as well as applicable one-time charges, for a given period of time. The tariff bill file information is presented in a hierarchical structure, which supports presentation of summary file, site and tariff bill period information, and detailed tariff bill period determinants and charges. Further, the structure supports presentation of multiple tariff bill periods and associated records to segment charges within a site's scheduled billing period. The tariff bill file structure, represented in Figure 4-1 for presentation purposes, is provided and transmitted as a .csv formatted file.

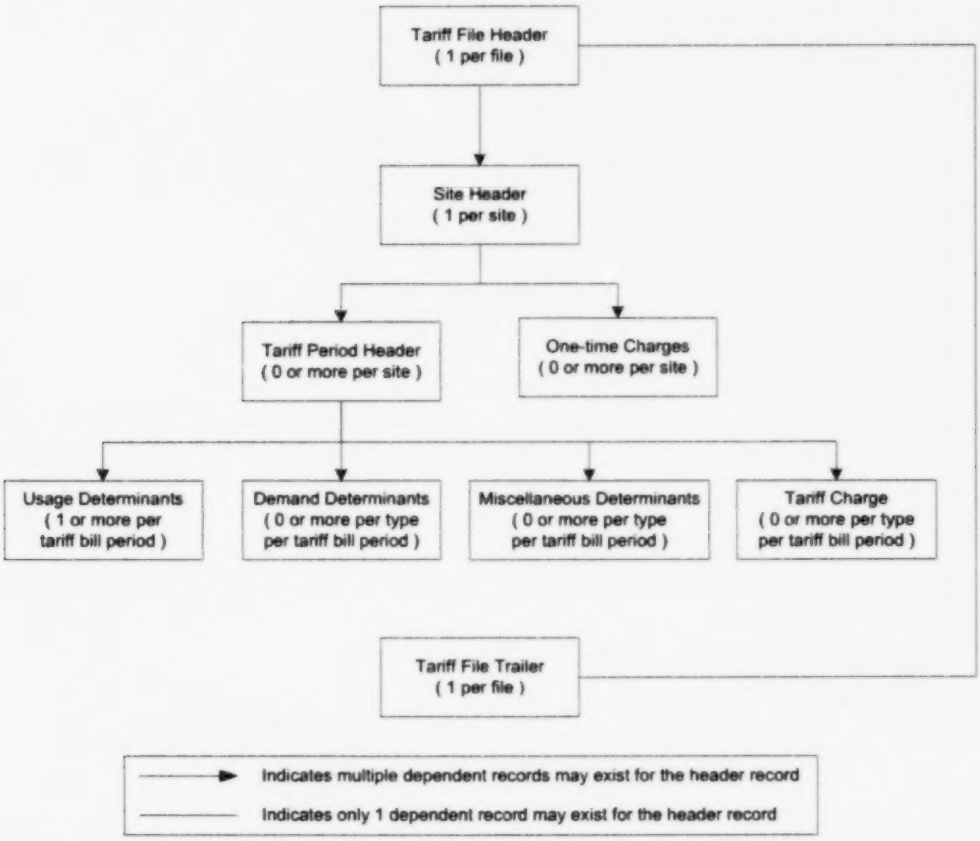

Tariff File Header
(1 per file)
Site Header
(1 per site)
Tariff Period Header
(0 or more per site)
One-time Charges
(0 or more per site)
Usage Determinants
(1 or more per tariff bill period)
Demand Determinants
(0 or more per type per tariff bill period)
Miscellaneous Determinants
(0 or more per type per tariff bill period)
Tariff Charge
(0 or more per type per tariff bill period)
Tariff File Trailer
(1 per file)
Indicates multiple dependent records may exist for the header record
Indicates only 1 dependent record may exist for the header record

Figure 4-1. Tariff Bill File Structure

4.3 Tariff Bill File Content Rules

This section of the code provides the rules that distributors are required to follow in the production of a tariff bill file.

4.3.1 General Tariff Bill File Rules

The following general rules apply in the production of a tariff bill file:

1) A tariff bill file must be produced per distributor service area on each scheduled tariff bill file publish date and include all sites for which a tariff bill file event has occurred. Where technical limitations prevent a distributor from presenting all of a retailer's sites within a single tariff bill file for any particular bill cycle, more than one tariff bill file may be produced per retailer per day, but all of a site's charges for that cycle must be presented in the same file.
2) In calculating and presenting tariff charges, a distributor must limit its degree of precision to the stated degree of precision, or less, for that field in the tariff bill file.
3) Only one commodity type may be represented in a tariff bill file.
4) One-time charges must be presented independently from other tariff charges under a site header and likewise must be disputed, cancelled, and/or rebilled independently from other tariff charges.
5) Where data fields are repeated throughout the file to link child records with their hierarchical parent, the field contents must match.
6) Electric distributors may express site and determinant records for totalized or multisocket sites as follows:
    a) for interval meters only: a single site representing the totalized usage, demand, and miscellaneous determinants for all meters for the same tariff bill periods.
    b) for cumulative or interval meters: individual sites representing meter-level usage, demand, and miscellaneous determinants for the tariff bill period.
7) Gas distributors will disclose totalized sites as a single site representing totalized usage, demand, and miscellaneous determinants for all meters for the same tariff bill periods.
8) Gas distributors will disclose subtract metered sites as a single site representing net usage, demand, and miscellaneous determinant for primary and subtract meters for the same tariff bill periods.
9) Distributors are obligated to release tariff bill file(s) containing all the sites in a tariff bill cycle on the scheduled tariff bill file publish date stated in the tariff bill calendar file, with the exception of any sites withheld from tariff bill file production. In addition, any sites subjected to a tariff billing event that requires the production and presentation of off-cycle tariff charges must also be included within the timeframe prescribed in Table2-1.
10) In subsequent sections, the following terms apply:
    a) Mandatory – must be populated for every record.
    b) Conditional – populated according to stated production rules.
    c) Optional – populated at a distributor's discretion.

4.3.2 Tariff File Header

The file header of a tariff bill file contains summary information necessary to validate and track information contained within the tariff bill file. The contents of the file header are provided in Table 4-2.

Table 4-2. Tariff File Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a tariff bill file header record to allow a distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Must be populated with [null] for the tariff file header.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This code must equal 'FH'.
4	Retailer ID	Retailer ID format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the intended retailer receiving the tariff bill file. Refer to Appendix B for further information.
5	Sender ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the distributor, or agent of the distributor, sending the tariff bill file. Refer to Appendix B for further information.
6	Commodity Code	Char(2)	MANDATORY FIELD – Standardized code representing commodity type. Refer to Appendix B for further information.
7	Date Created	Datetime format	MANDATORY FIELD – Datetime the tariff bill file was created or last modified. To ensure that a retailer is provided with up-to-date tariff billing information, this date must be equal to or no more than 2 business days in advance of the scheduled tariff bill file publish date (as reported in the tariff bill calendar file).
8	Bill Cycle	Varchar(9)	CONDITIONAL FIELD – The bill cycle to which sites included in a tariff bill file that are billing on their regular bill cycle belong. If a bill cycle is not scheduled to be published on a given day but off cycle charges must be presented = [null].
9	Tariff Bill File Reference ID	Number(15)	CONDITIONAL FIELD – Record ID of the file header record of a Tariff Bill File that has been rejected and is being replaced. Note: If one or more replacement files have been rejected, this must equal the Tariff Bill File Header Record ID of the last rejected Tariff Bill File.

Production Rules

The following production rules apply for the tariff file header:

1) Data contained within the tariff file header must adhere to the field level rules stated in Table 4-2.
2) A tariff bill file must contain only one file header record.

4.3.3 Site Header

The site header of the tariff bill file is the hierarchical child of the tariff file header and is the physical representation of a site's current billing period. It contains general site information, as well as site summary information related to usage and tariff charges contained within a tariff bill file. The contents of the site header are provided in Table 4-3.

Table 4-3. Site Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a site header record produced by a distributor to allow the distributor or a retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff file header record. This must match the record ID presented in the tariff file header record.
3	Record Type	Char(2)	MANDATORY – Code to indicate record type. Value must equal 'SH'.
4	Site ID	Site ID format	MANDATORY – Unique identifier representing a site in the market. Refer to Appendix B for further information.

Element Sequence	Element (in sequence)	Data Type/Size	Description
5	Current Billing Period Start Date	Date format	CONDITIONAL FIELD – Start date (inclusive) of the current billing period. This must equal the earliest Tariff Bill Period Start Date of the original tariff bill periods for a site (i.e., excluding cancel/rebills) that occur after the last current billing period previously issued to a retailer. Where tariff bill periods consisting of only cancel and/or rebill charges are presented for a site, or in the absence of tariff bill periods, this field must be populated with [null].
6	Current Billing Period End Date	Date format	CONDITIONAL FIELD – End date (inclusive) of the current billing period. This must equal the latest Tariff Bill Period End Date of original tariff bill periods for a site for a site (i.e., excluding cancel/rebills) that occur after the last current billing period previously issued to a retailer. Where tariff bill periods consisting of only cancel and/or rebill charges are presented for a site, or in the absence of tariff bill periods, this field must be populated with [null].
7	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor responsible for the site. Refer to Appendix B for further information. Note that this distributor may be different from the distributor sending the tariff bill file.
8	Zone ID	Zone ID format	MANDATORY FIELD – Unique identifier representing a settlement zone within Alberta. Refer to Appendix B for further information.
9	Municipality ID	Varchar(4)	MANDATORY FIELD – Unique identifier representing a municipality in Alberta. Refer to Appendix B for further information.
10	REA Code	Char(4)	CONDITIONAL FIELD – Unique identifier representing a valid REA in Alberta. Refer to Appendix B for further information. If Commodity Code = 'EL' and site is not within an REA Code = [null]. If Commodity Code = 'NG' then REA Code = [null].
11	Bill Cycle	Varchar(9)	MANDATORY FIELD – A value representing the bill cycle for a site. This value must match a distributor's published bill cycle.
12	Usage Total	Number(14,4)	MANDATORY FIELD – Usage check total for a site. This must equal the sum of all 'Usage Amount' fields in a given tariff bill file for a site, including cancel/rebills. Positive and negative values are acceptable. If a site has no usage records, Usage Total = 0
13	Usage UOM	Varchar(4)	MANDATORY FIELD – Unit of measure for usage. If Commodity Code = 'EL', Usage UOM = 'KWH'. If Commodity Code = 'NG' Usage UOM = 'GJ'.
14	Charge Total	Number(11,2)	MANDATORY FIELD – Charge check total for a site. This must equal the sum of all 'Charge Amount' fields in both tariff charge and one-time charge records in a given tariff bill file for a site, including cancel/rebills. Positive and negative values are acceptable. If site has no tariff charge or one-time charge records, Charge Total = 0
15	Additional Site Information	Varchar(50)	OPTIONAL FIELD – Free-form text field for providing additional site information that can be used at a retailer's discretion to place on a customer's bill.
16	Site Production Reason Code	Number(4)	MANDATORY FIELD – Populate with a standard code representing the tariff billing event, triggering the inclusion of the site in the tariff bill file. Refer to Appendix B for further information.
17	As-at Date	Datetime format	OPTIONAL FIELD – Populate with the latest transaction datetime for interval data used in the bill run for a site.
18	Parent Site ID	Site ID format	CONDITIONAL FIELD – Site ID of the master/parent site, where applicable.

Production Rules

The following production rules apply to the site header:

1) Data contained within the tariff bill file site header must adhere to the field level rules stated in Table 4-3.
2) A tariff bill file must contain only one site header per site.
3) If the tariff bill file is only presenting cancels, rebills, or one-time charges for the site, no current billing period applies.
4) A site header is required in the case of a site that has incurred no charges (i.e., tariff or one-time charges) for a scheduled billing period. The exceptions to this production rule are:
   a) sites that belong to a seasonal rate class (e.g., irrigation), which will be billed in accordance with the terms and conditions of that rate class.
   b) sites that have been created but not yet energized.
5) A site header is not required if a site has been withheld from tariff bill file production due to failure of standard content validation tests or other internal production validation tests.
6) Current billing periods must be contiguous. As a consequence, if a distributor must present original tariff billing information for a period of time that precedes the end date of the last current billing period presented to a retailer, the current billing period must only reflect original tariff bill periods that occur after the end date of the last current billing period presented to that retailer.

4.3.4 Tariff Bill Period Header

The tariff bill period header of the tariff bill file is the hierarchical child of the site header and is the physical representation of a site's tariff bill period. Each tariff bill period header represents a unique tariff bill period for a site. It defines the tariff bill period and contains summary information pertaining to usage and tariff charges for that period. The contents of the tariff bill period header are provided in Table 4-4.

Table 4-4. Tariff Bill Period Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a tariff bill period header record produced by a distributor to allow the distributor or a retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent site header record. This must match the record ID presented in the site header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. Value must equal 'TH'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. This must equal the site ID presented in the site header. Refer to Appendix B for further information.
5	Tariff Bill Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the tariff bill period.
6	Tariff Bill Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the tariff bill period. This date cannot exceed the current billing period end date.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Tariff Bill Period Reference ID	Number(15)	CONDITIONAL FIELD – Record ID of a previous tariff bill period that is being cancelled. If Cancel Indicator = 'Y', this field is MANDATORY.
9	Cancel Reason Code	Number(4)	CONDITIONAL FIELD – Standardized code indicating a reason for sending a cancel. Refer to Appendix B for further information. If Cancel Indicator = 'Y', this field is MANDATORY.

Element Sequence	Element (in sequence)	Data Type/Size	Description
10	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify the tariff rate applicable to the tariff bill period. The description of the code used in this field must match the distributor's published tariff rate code. Refer to Appendix B for further information.
11	Site Status Code	Char(1)	MANDATORY FIELD – Standardized code representing a site's status relative to the tariff bill period. Refer to Appendix B for further information.
12	Usage Total	Number(14,4)	MANDATORY FIELD – Usage check total for a tariff bill period. This must equal the sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period including cancel/rebills. Positive and negative values are acceptable.
13	Usage UOM	Varchar(4)	MANDATORY FIELD – Unit of measure for usage. If Commodity Code = 'EL', Usage UOM = 'KWH' If Commodity Code = 'NG' Usage UOM = 'GJ'
14	Charge Total	Number(11,2)	MANDATORY FIELD – Total charges for a tariff bill period. This must equal the sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period. Positive and negative values are acceptable. If a tariff period has no tariff charge records , Charge Total = 0

Production Rules

The following production rules apply to the tariff bill period header:

1) Data contained within the tariff bill period header must adhere to the field level rules stated in Table 4-4.
2) A tariff bill file can contain multiple tariff bill period headers per site.
3) Gaps are permitted between tariff bill periods only if the gap is supported by an SRO transaction followed by an SRN transaction.
4) Tariff bill periods having a cancel indicator equal to 'N' cannot overlap unless the tariff bill period being overlapped has been cancelled.
5) The tariff bill period end date must be equal to the effective date of a tariff billing event, as outlined in Table 3-1.
6) Unless only one-time charges are being presented for a site, a distributor must present a tariff bill period header record for each site in the tariff bill file, even if no charges apply to a site for that specific tariff bill period, to support the disclosure of site status during the period and to support the audit trail of potential cancel/re-bills.

4.3.5 Determinants – Usage

The usage determinant record of the tariff bill file is a hierarchical child of the tariff bill period header and is the physical representation of the usage period. This record provides detailed usage for the tariff bill period. The contents of the usage determinant record are provided in Table 4-5.

Table 4-5. Usage Determinant Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each usage determinant record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. Value must equal 'DU'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. This must equal the site ID presented in the site header. Refer to Appendix B for further information.

Element Sequence	Element (in sequence)	Data Type/Size	Description
5	Usage Period Start Date	Date format	MANDATORY FIELD – Full-day representation of the start date (inclusive) of a usage period bound by the tariff bill period.
6	Usage Period End Date	Date format	MANDATORY FIELD – Full-day representation of the end date (inclusive) of a usage period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Meter Type Code	Char(1)	MANDATORY FIELD – Code to indicate meter type. Refer to Appendix B for further information.
9	Meter Number	Varchar(20)	CONDITIONAL FIELD – Unique identifier within a distributor's zone representing a meter. If Meter Type Code = 'C', this field is MANDATORY.
10	Number of Dials	Number(3)	CONDITIONAL FIELD – Value representing the number of dials on a meter. The value must represent a positive integer. If Site Status Code = 'E' and Meter Type Code = 'C', this field is MANDATORY.
11	From Reading	Number(14,4)	CONDITIONAL FIELD – Value representing the start dial read for the usage period. If Site Status Code = 'E' and Meter Type Code = 'C,' this field is MANDATORY.
12	From Reading Code	Char(1)	CONDITIONAL FIELD – Standardized reading type code to indicate type of reading. Refer to Appendix B for further information. If Site Status Code = 'E' and Meter Type Code = 'C', this field is MANDATORY.
13	To Reading	Number(14,4)	CONDITIONAL FIELD – Value representing the end dial read value for the usage period. If Site Status Code = 'E' and Meter Type Code = 'C', this field is MANDATORY.
14	To Reading Code	Char(1)	CONDITIONAL FIELD – Standardized reading type code to indicate type of reading. Refer to Appendix B for further information. If Site Status Code = 'E' and Meter Type Code = 'C', this field is MANDATORY.
15	Billing Multiplier	Number(14,9)	CONDITIONAL FIELD – Billing multiplier is the factor that is multiplied by the meter dial difference to determine a usage value. This value must be a positive number. If Site Status Code = 'E' and Meter Type Code = 'C', this field is MANDATORY.
16	Usage Amount	Number(13,4)	MANDATORY FIELD – Value representing the number of units consumed. Positive and negative values are acceptable. If Meter Type = 'I', this represents the total measured usage for the usage period. If Meter Type = 'C' then, where metering information has been provided, Usage Amount must be within 0.5 kWh of the result of the following calculation: (To Reading – From Reading) × Billing Multiplier where To Reading is greater than From Reading, or (10 to the power of the number of dials + To Reading – From Reading) × Billing Multiplier where To Reading is less than From Reading; otherwise Usage Amount = 0 If Meter Type = 'U', this represents deemed usage. If Meter Type = 'T', this represents total usage recorded for all meters attributed to the totalized site. If Meter Type = 'S', this represents net consumption for primary and subtract meters attributed to the site. If Cancel Indicator = 'Y', Usage Amount must be expressed as a negative value.
17	Usage UOM	Varchar(4)	MANDATORY FIELD – Unit of measure for usage. If Commodity Code = 'EL', Usage UOM = 'KWH'. If Commodity Code = 'NG', Usage UOM = 'GJ'.

Production Rules

The following production rules apply to the usage determinant record:

1) Data contained within the usage determinant record must adhere to the field level rules stated in Table 4-5.
2) A tariff bill file can contain multiple usage determinant records per tariff bill period per site.
3) Usage periods having a cancel indicator equal to 'N' cannot overlap unless the usage period being overlapped has been cancelled.
4) Usage reported for a totalized site consisting of interval meters, as prescribed in Section 4.3.1, rule 6, must equal the total usage of all meters for that site.
5) The usage period start and end dates need not align with the charge period start and end dates within a tariff bill period, except where a tariff billing event replaces such alignment.
6) If a physical meter read (DCM) is allocated into smaller components, the sum of all the smaller components must add up to the original usage amount in the DCM, even if they span multiple tariff bill files.
7) One or more usage determinant records are required for each tariff bill period provided.
8) (Gas only) Totalized usage reported for a site must be reconcilable to the sum of the metered usage values reported for the site in the metering period.
9) (Gas only) Subtract usage reported for a site must be reconcilable to metered usage reported for the site.

4.3.6 Determinant – Demand

The demand determinant record of the tariff bill file is a hierarchical child of the tariff bill period header record and is the physical representation of the demand relevant to a tariff bill period. This record provides detailed demand information upon which tariff charges for the tariff bill period are determined. The contents of the demand determinant record are provided in Table 4-6.

Table 4-6. Demand Determinant Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each demand determinant record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DD'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. This must equal the site ID presented in the site header. Refer to Appendix B for further information.
5	Demand Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the demand period, bound by the tariff bill period.
6	Demand Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the demand period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Demand Type Code	Number(4)	MANDATORY FIELD – Standardized code indicating the demand type. Refer to Appendix B for further information.

Element Sequence	Element (in sequence)	Data Type/Size	Description
9	Demand Value	Number(10,4)	MANDATORY FIELD – Value indicating the demand as per the type. Positive and negative values are acceptable. Negative values represent cancels; If Meter Type = 'U', use deemed demand. If Meter Type = 'I' or 'C', use metered demand.
10	Demand UOM	Varchar(4)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Appendix B for further information.
11	Meter Number	Varchar(20)	CONDITIONAL FIELD – Unique identifier within a distributor's zone representing a meter. If Meter Type Code = 'C' and Demand Type Code = 'Metered', this field is MANDATORY.
12	Ratchet Datetime	Datetime format	CONDITIONAL FIELD – Datetime ratchet value was established. The datetime in this field must occur prior to the tariff bill file Date Created. If Demand Type Code = 'Ratchet', 'Transmission Ratchet', 'Distribution Ratchet' or 'Service Ratchet', this field is MANDATORY. If Meter Type Code = 'C', report the meter reading end date of the period within which the ratchet was established.
13	Ratchet Period Months	Number(2)	CONDITIONAL FIELD –The number of months that the ratchet is set for according to a distributor's published tariff. If Demand Type Code = 'Ratchet', 'Transmission Ratchet', 'Distribution Ratchet' or 'Service Ratchet', this field is MANDATORY.
14	Power Factor	Number(7,6)	CONDITIONAL FIELD – Power factor value as reported by distributor. This value must reflect Power Factor application, where applicable. If a conversion is not required between Measured Demand UOM and Component Billed Quantity UOM or tariff charges do not depend on a Power Factor conversion = [null]. If Commodity Code = 'NG', then Power Factor = [null].
15	Demand Contract End Date	Date format	CONDITIONAL FIELD – Contract end date as per distributor or ISO. If Demand Type = 'Contract', 'Transmission Contract', 'Distribution Contract' or 'Service Contract', and the contract is not an evergreen contract, this field must be populated with the contract end date, otherwise = [null].

Production Rules

The following production rules apply to the demand determinant record:

1) Data contained within the demand determinant record must adhere to the field level rules stated in Table 4-6.
2) The following billing demand determinants must be disclosed per tariff bill period per site to support tariff charges according to a distributor's published tariff:
   a) billing demand; or
   b) transmission billing demand; or
   c) distribution billing demand; or
   d) service billing demand; or
   e) a combination of transmission billing and distribution billing demand; or
   f) a combination of transmission billing, distribution billing and service billing demand.
3) Demand records having a cancel indicator equal to 'N' cannot overlap unless the demand record being overlapped has been cancelled.
4) (Electric only) Demand reported for a totalized site consisting of interval meters, as prescribed in Section 4.3.1, rule 6, must equal the total demand of all meters for that site.
5) Where demand determinants do not apply, this record will be absent from the tariff bill period.

6) In addition, all relevant demand determinants used in the derivation of those billing demand determinants must also be disclosed.
7) (Gas only) Totalized demand reported for a site must be reconcilable to the maximum active demand reported for the site in the metering period.
8) (Gas only) metered demand reported for a site must be reconcilable to the maximum active demand reported for the site.

4.3.7 Determinants – Miscellaneous

The miscellaneous determinant record of the tariff bill file is a hierarchical child of the tariff bill period header and is the physical representation of determinants exclusive of demand and usage relevant to a tariff bill period. This record provides detailed determinant information upon which tariff charges for the tariff bill period can be based. The contents of the miscellaneous determinant record are provided in Table 4-7.

Table 4-7. Miscellaneous Determinant Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each miscellaneous determinant record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DM'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. This must equal the site ID presented in the site header. Refer to Appendix B for further information.
5	Miscellaneous Determinant Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the Miscellaneous Determinant period, bound by the tariff bill period.
6	Miscellaneous Determinant Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the Miscellaneous Determinant period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Unit Quantity	Number(12,4)	MANDATORY FIELD – Number of units used for determination of charges. Positive and negative values are acceptable. Negative values represent cancels: If Unit Quantity UOM = 'BFLAG', Unit Quantity = '0' or '1'. 0=No; 1=Yes.
9	Unit Quantity UOM	Varchar(7)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Appendix B for further information.
10	Miscellaneous Determinant Code	Varchar(4)	MANDATORYFIELD – Standardized code to represent a miscellaneous determinant disclosed in a tariff bill file. Refer to Appendix B for further information.

Production Rules

The following production rules apply to the miscellaneous determinant record:

1) Data contained within the miscellaneous determinant record must adhere to the field level rules stated in Table 4-7.
2) A tariff bill file can contain multiple miscellaneous determinant records per tariff bill period per site.

3) When utilizing the Boolean Flag to indicate exemption or other information with respect to site or other tariff charges, the Unit Quantity field should be populated with 1 or 0, the Unit Quantity UOM field should be populated with BFLAG, and the Miscellaneous Determinant Code field should contain relevant information to disclose the meaning of the Boolean Flag.
4) Where miscellaneous determinants do not apply, this record will be absent from the tariff bill period.

4.3.8 Tariff Charge

The tariff charge record of the tariff bill file is a hierarchical child of the tariff bill period header and is the physical representation of the tariff charges that apply to the site. This record provides detailed tariff charge information for a tariff bill period based on the determinants presented in the demand, usage, and miscellaneous determinants records. The contents of the charge record are provided in Table 4-8.

Table 4-8. Tariff Charge Detail Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each charge record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'CH'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. This must equal the site ID presented in the site header. Refer to Appendix B for further information.
5	Charge Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the applicable charge period bound by the tariff bill period.
6	Charge Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the applicable charge period bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Tariff Cross Reference Code	Varchar(9)	MANDATORY FIELD – Code to identify the tariff rate applicable to the tariff bill period. The rate code provided must match the distributor's published tariff rate code. Refer to Appendix B for further information.
9	Component Category Code	Number(4)	MANDATORY FIELD – Standardized code representing a charge category. Refer to Appendix B for further information.
10	Component Basis Code	Char(1)	MANDATORY FIELD – Standardized code to subdivide a charge category. Refer to Appendix B for further information.
11	Component Type Code	Varchar(4)	MANDATORY FIELD – Standardized code to represent a charge component type. Refer to Appendix B for further information.
12	Component Step Number	Number(3)	MANDATORY FIELD – Numeric value starting at 1 indicating the order in which charges are calculated. Default = 1 if the published tariff has only one charge component.
13	Component Billed Quantity	Number(15,6)	MANDATORY FIELD – Number of units used in determination of the charge step. Positive and negative values are acceptable. Negative values represent cancels.

Element Sequence	Element (in sequence)	Data Type/Size	Description
14	Component Billed Quantity UOM	Varchar(7)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Appendix B for further information. If Component Billed Quantity value is the result of a calculation, UOM = 'CALC'. If Component Basis Code = 'D', the Component Billed Quantity UOM must equal a valid Demand UOM (refer to Table B5-13 in Appendix B5.16). If Component Basis Code = 'E', the Component Billed Quantity UOM must equal a valid Usage UOM (refer to Table B5-5 in Appendix B5.8). If any other Component Basis Code is presented, the Component Billed Quantity UOM must equal a valid Unit Quantity UOM and Billed Quantity UOM (refer to Table B5-14 in Appendix B5.17).
15	Time Calculation Type	Char(1)	MANDATORY FIELD – A value indicating whether a particular charge is expressed as a daily, monthly, or period charge ('Period' means that the charge covers the entire charge period). D = Daily; M = Monthly; P = Period.
16	Time Factor	Number(9,6)	CONDITIONAL FIELD – Numeric value representing unit of time for a charge. If Time Calculation Type = 'D', this value must be presented as an integer greater than or equal to 1. If Time Calculation Type = 'M', this value must be greater than 0. If Time Calculation Type = 'P', this value must be equal to 1.
17	Component Unit Price	Number(19,12)	MANDATORY FIELD – Numeric value representing the price for an individual unit of measure. This value must be consistent with a distributor's filed tariff and must be expressed in the equivalent dollar value.
18	Charge Amount	Number(11,2)	MANDATORY FIELD – Numeric value representing the charge amount exclusive of GST. This value must be within '1' dollar of the result of the following calculation: Component Unit Price x Time Factor x Component Billed Quantity.
19	GST Exemption Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating whether a particular charge item (not a customer) is GST exempt. Y=Yes; N=No.

Production Rules

The following production rules apply to the tariff charge record:

1) Data contained within the tariff charge record must adhere to the field level rules stated in Table 4-8.
2) A tariff bill file can contain multiple charge periods per tariff bill period per site.
3) Charge periods identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original charge periods of the same component charge (combination of tariff cross reference code, component category, component basis code, component type code, and component step number) for the same tariff bill period.
4) The charge period start and end dates need not align with the usage period start and end dates within a tariff bill period.
5) The charge period will not contain any non-site-specific charges (e.g., late payment interest, penalties, or charges not attributable to a site).
6) Where tariff charges do not apply (i.e., zero billed quantity or unit price), this record may be absent from the tariff bill period.
7) Charge period gaps within a tariff bill period must not exist for a single component charge (combination of tariff cross-reference code, component category code, component type code, component basis code and step number), having a component basis code of 'D' or 'E'.
8) Tariff charge record presentation must adhere to a distributor's EUB-approved and published tariff (i.e., Component Category Code, Component Basis Code, Component Step Number, Component Billed Quantity UOM and Component Unit Price, elements for each charge detail record must correspond to the published tariff structure.)

4.3.9 One-time Charge

The one-time charge record of the tariff bill file is the hierarchical child of the site header and is the physical representation of a site's applicable one-time charges. This record provides detailed one-time charge information for charges incurred during the current billing period, and/or in some cases, a prior billing period. The contents of the one-time charge record are provided in Table 4-9.

Table 4-9. One-Time Charge Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each one-time charge record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent site ID record. This must match the record ID presented in the site header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'OC'.
4	Site ID	Site ID format	MANDATORY FIELD – Unique reference ID for the site for which the tariff charges apply. This must equal the site ID presented in the site header. Refer to Appendix B for further information.
5	Charge Date	Date format	MANDATORY FIELD – Date one-time charge occurred.
6	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
7	One-time Charge Reference ID	Number(15)	CONDITIONAL FIELD – Record ID of a previous one-time charge record being cancelled. If Cancel Indicator = 'Y', this field is MANDATORY.
8	Cancel Reason Code	Number(4)	CONDITIONAL FIELD – Standardized code indicating a reason for sending a cancel. Refer to Appendix B for further information. If Cancel Indicator = 'Y', this field is MANDATORY.
9	One-time Charge Code	Varchar(4)	MANDATORY FIELD – Standardized code for one-time charges. Refer to Appendix B for further information.
10	Charge Amount	Number(11,2)	MANDATORY FIELD – Numeric value representing the charge amount exclusive of GST. Positive and negative values are acceptable.
11	GST Exemption Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a GST exempt charge. Y=Yes; N=No.

Production Rules

The following production rules apply to the one-time charge record:

1) Data contained within the one-time charge record must adhere to the field level rules stated in Table 4-9.
2) A tariff bill file can contain multiple one-time charge records per site.
3) One-time charge records identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original one-time charges of the same charge code for the same site for the same day.[8]
4) Where tariff charges apply, the one-time charge records disclosed in a tariff bill file should fall within the current billing period dates specified in the site header record. One-time charges for a previous billing period could be presented in a subsequent billing period but should only occur on an exception basis. The one-time charge metric prescribed in Table 2-2 will monitor the frequency that one-time charges are presented outside of the current billing period.

[8] Circumstances may exist where multiple one-time charges of the same charge code for the same site are required on the same day. In this instance, a distributor may send these charges to a retailer but the retailer has recourse under the Tariff Billing Dispute (TBD) transaction to confirm the validity of these charges.

5) *If a site* has no one-time charges, this record will be absent from the tariff bill file for that specific site.

4.3.10 File Trailer

The file trailer record of a tariff bill file contains summary information necessary to validate information contained within the tariff bill file. The contents of the file trailer are provided in Table 4-10.

Table 4-10. File Trailer Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each tariff bill file trailer record produced by a distributor to allow the distributor or retailer to refer to the specific data record. This value must be unique to a distributor.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill file header record. This must match the record ID presented in the tariff bill file header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This code must equal 'FT'.
4	File Record Count	Number(9)	MANDATORY FIELD – Count of the number of records (including tariff file header and trailer records) in the tariff bill file.
5	Charge Total	Number(11,2)	MANDATORY FIELD – Sum of all 'Charge Amount' fields in both tariff charge and one-time charge records within the tariff bill file, including cancel/rebills. Positive and negative values are acceptable.

Production Rules

The following production rules apply for the file trailer record:

1) Data contained within the tariff bill file trailer record must adhere to the field level rules stated in Table 4-10.
2) A tariff bill file must contain only one file trailer record.

4.4 Tariff Bill Accept (TBA) Transaction

The TBA transaction enables a retailer to inform a distributor of positive retailer standard file format validation tests and retailer acceptance of a tariff bill file. If a TBA transaction is not sent from a retailer to a distributor within the prescribed timeframe as stated in Table 2-1, the distributor may proceed with distributor invoicing. The contents of the TBA transaction are provided in Table 4-11.

Table 4-11. Tariff Bill Accept (TBA) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TBA'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for a TBA transaction. This identifier must be unique to a retailer.
3	Sender ID	Retailer ID Format	MANDATORY FIELD – Unique identifier for a sender. This identifier must equal that of the retailer sending the transaction . Refer to Appendix B for further information.
4	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the distributor, or agent of the distributor, receiving the transaction (i.e., the Sender ID from File Header record of the applicable tariff bill file). Refer to Appendix B for further information.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TBA transaction was created or last modified.
6	Tariff Bill File Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the tariff bill file being accepted. This must match the record ID presented in the tariff bill file header record of the tariff bill file in question.

Production Rules

The following production rules apply for the TBA transaction:

1) Data contained within the TBA transaction must adhere to the field level rules stated in Table 4-11.
2) Retailers must submit the TBA transaction within the timeframe prescribed in Table 2-1.

4.5 Tariff Bill Reject (TBR) Transaction

The TBR transaction enables a retailer to inform a distributor of negative retailer standard file format validation test results and retailer rejection of the tariff bill file. If a TBR transaction is not sent from a retailer to a distributor within the timeframe prescribed in Table 2-1, the distributor will proceed with distributor invoicing. The contents of the TBR transaction are provided in Table 4-12.

Table 4-12. Tariff Bill Reject (TBR) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TBR'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for a TBR transaction. This identifier must be unique to a retailer.
3	Sender ID	Retailer ID format	MANDATORY FIELD – Unique identifier for a sender. This identifier must equal that of the retailer sending the transaction. Refer to Appendix B for further information.
4	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the distributor, or agent of the distributor, receiving the transaction (i.e., the Sender ID from File Header record of the applicable tariff bill file). Refer to Appendix B for further information.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TBR transaction was created or last modified.
6	Tariff Bill File Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the tariff bill file being rejected. This must match the record ID presented in the tariff bill file header record of the tariff bill file in question.
7	TBF Rejection Code	Number(4)	MANDATORY FIELD – Standardized code indicating the reason for rejecting a tariff bill file. Refer to Appendix B for further information.
8	Record ID	Number (15)	CONDITIONAL - Record ID of the first record within the tariff bill file that has failed a file format validation. This field should be populated with the Record ID of the record in violation of a file format validation, except in the case of Reference IDs 1 and 2 in the file format validation tests.

Production Rules

The following production rules apply for the file trailer record:

1) Data contained within the TBR transaction must adhere to the field level rules stated in Table 4-12.
2) Retailers must submit a TBR transaction within the timeframe prescribed in Table 2-1.

4.6 Tariff Bill Reject Notification (TRN) Transaction

The TRN transaction enables a distributor to inform a retailer of the status of a TBR transaction. It is mandatory for a distributor to send this transaction to a retailer if a TBR transaction has been received from the retailer. The contents of the TRN transaction are provided in Table 4-13.

Table 4-13. Tariff Bill Rejection Notification (TRN) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TRN'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the TRN transaction. This identifier must be unique to a retailer.
3	Sender ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the distributor, or agent of the distributor, sending the transaction. Refer to Appendix B for further information.
4	Retailer ID	Retailer ID format	MANDATORY FIELD – Unique identifier for a recipient. This identifier must equal that of the intended retailer receiving the transaction. Refer to Appendix B for further information.
5	Date Created	Datetime	MANDATORY FIELD – Datetime the TRN transaction was created or last modified.
6	Transaction Reference ID	Number(15)	MANDATORY FIELD – Unique reference ID of the original TBR transaction. This value must equal the transaction ID of the TBR transaction being referenced.
7	Tariff Bill File Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the tariff bill file being accepted or rejected. This must match the record ID presented in the tariff bill file header record of the tariff bill file in question.
8	Reject Notification Status Code	Char(1)	MANDATORY FIELD – Code representing the status of the referenced TBR transaction. If a distributor accepts the TBR transaction = 'A', otherwise = 'R'.

Production Rules

The following production rules apply for the TRN transaction:

1) Data contained within the TRN transaction must adhere to the field level rules stated in Table 4-13.
2) Distributors must submit a TRN transaction within the timeframe prescribed in Table 2-1.

4.7 Tariff Bill Dispute (TBD) Transaction

The TBD transaction enables a retailer to dispute tariff billing information delivered by a distributor in a tariff bill file at the tariff bill period level or one-time charge level. This transaction is utilized by a retailer to inform a distributor of standard file content validation test failures. A distributor is not obligated to build automated functionality to process this transaction and resolve retailer disputes. The contents of the TBD transaction are provided in Table 4-14.

Table 4-14. Tariff Billing Dispute (TBD) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TBD'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the TBD transaction. This identifier must be unique to a retailer.
3	Sender ID	Retailer ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the retailer sending the transaction. Refer to Appendix B for further information.
4	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the distributor, or agent of the distributor, receiving the transaction (i.e., the Sender ID from File Header record of the applicable tariff bill file). Refer to Appendix B for further information.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TBD transaction was created or last modified.
6	Tariff Bill File Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the tariff bill file in which records are being disputed. This must match the record ID presented in the tariff bill file

Element Sequence	Element (in sequence)	Data Type/Size	Description
			header record of the tariff bill file in question.
7	Site ID	Site ID format	MANDATORY FIELD – Unique reference ID for the site for which disputed records apply. Refer to Appendix B for further information.
8	Tariff Bill Period Record ID	Number(15)	CONDITIONAL FIELD – Unique reference ID for the tariff bill period being disputed. If disputing a tariff bill period, this field is MANDATORY and must equal the record ID of the tariff bill period header record being disputed; otherwise it is [null].
9	Record ID	Number(15)	OPTIONAL FIELD – Record ID of the related tariff bill period child record in error.
10	One-Time Charge Record ID	Number(15)	CONDITIONAL FIELD – Unique reference ID for the one-time charge being disputed. If disputing a one-time charge record, this field is MANDATORY and must equal the record ID of the one-time charge record being disputed; otherwise it is [null].
11	Dispute Code	Number(4)	MANDATORY FIELD – Standard code representing the reason for the dispute. Refer to Appendix B for further information.

Production Rules

The following production rules apply for the TBD transaction:

1) Data contained within the TBD transaction must adhere to the field level rules stated in Table 4-14.
2) The dispute code must be reported at the record level of a tariff bill file.
3) A TBD transaction must be created for each tariff bill period header record or one-time charge record found to be in error.

4.8 Tariff Bill Calendar File

The tariff bill calendar file provides a common format for distributors to disclose yearly tariff bill cycle schedules to retailers and must adhere to the performance requirements prescribed in Table 2-1. Distributors must publish the tariff bill calendar file according to the file standards defined in Table 4-15.

Table 4-15. Tariff Bill Calendar File Contents

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor, or agent of the distributor, producing the file. Refer to Appendix B for further information.
2	Billing Month	Number (6)	MANDATORY FIELD – Unique identifier for a Bill Month Period. This unique identification must be in the following format = YYYYMM. In cases where a billing period for a bill cycle spans multiple months, this value must equal the latest month of the billing period.
3	Bill Cycle	Varchar(9)	MANDATORY FIELD – Unique identifier for a distributor's bill cycle.
4	Scheduled Tariff Bill File Publish Date	Date format	MANDATORY FIELD – Scheduled date for tariff bill file publication.
5	Scheduled Read Date	Date format	OPTIONAL FIELD – The date that sites will be estimated up to for a billing run if reads are not received or are shorter than 27 days in length. Except where a scheduled read date is not known (limited to irrigation sites or where a distributor depends on customer supplied reads (e.g., REAs)), this field should be populated with the cycle's scheduled read date.
6	Read Release Date	Date format	OPTIONAL FIELD – Date the reads are scheduled to be released to the market.

Element Sequence	Element (in sequence)	Data Type/Size	Description
7	Irregular Bill Period Type Code	Number(4)	MANDATORY FIELD – Standardized code indicating the irregular bill period type. Refer to Appendix B for further information.

Production Rules

The following production rules apply for the tariff bill calendar file:

1) Data contained within the tariff bill calendar file must adhere to the field level rules stated in Table 4-15.
2) Only one record per bill cycle per scheduled billing period can be included in the file.
3) The span of time between two successive scheduled tariff bill publish dates for each bill cycle must not be less than 27 days or greater than 35 days, except where that cycle is identified as having an irregular bill period.
4) The Scheduled Read Date field must be populated with the cycle's scheduled read date, except in the case of irrigation sites or where a distributor depends on customer supplied reads.
5) Where the Scheduled Read Date is not populated with the cycle's scheduled read date, as in the exception above, a distributor is expected to estimate up to the point in time defined by the scheduled tariff bill file publish date minus a maximum of 6 business days (date upon which the scheduled read date would be defined if practices supported it).
6) The combination of "Bill Cycle" and 'Billing Month' disclosed in a distributor's tariff bill calendar file must be unique.
7) An irregular (seasonal) bill cycle is one that exceeds the 27 to 35 day span of time between two successive scheduled tariff bill publish dates.

4.9 Site Cycle Catalogue File

The site cycle catalogue file provides a common format for distributors to disclose site and bill cycle data to a retailer to enable the retailer to cross reference sites to a distributor's bill cycle. Distributors must publish the site cycle catalogue file according to the file standards defined in Table 4-16.

Table 4-16. Site Cycle Catalogue File Contents

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor, or agent of the distributor, producing the file. Refer to Appendix B for further information.
2	Site ID	Site ID format	MANDATORY – Unique identifier representing a site in the market. Refer to Appendix B for further information.
3	Bill Cycle	Varchar(9)	MANDATORY FIELD – Unique identifier for a distributor's bill cycle.
4	Future Bill Cycle	Varchar(9)	CONDITIONAL FIELD – Unique identifier for a distributor's bill cycle indicating a site's future bill cycle. In refreshing its Site Cycle Catalogue if a distributor is aware that a site will change to a different bill cycle, this field is MANDATORY as it provides advance notice of the site's future cycle assignment.
5	Future Effective Date	Date format	CONDITIONAL FIELD – Effective date of the future bill cycle. If Future Cycle field is populated, this field is MANDATORY.

Production Rules

The following production rules apply for the site cycle catalogue file:

1) Data contained within the site cycle catalogue file must adhere to the field level rules stated in Table 4-16.
2) Only one record per site can be included in the file.

4.10 Customer Switch Advice (CSA) Transaction

The CSA transaction provides a mechanism for retailers to advise distributors of either
1) a customer switch at a specific site, or
2) retailer termination of a contract for provision of electric services at a specific site.[9]

The contents of the CSA transaction are provided in Table 4-17.

Table 4-17. Customer Switch Advice (CSA) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'CSA'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the CSA transaction. This value must be unique within a retailer.
3	Sender ID	Retailer ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the retailer sending the transaction. Refer to Appendix B for further information.
4	Distributor ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the distributor, or agent of the distributor, receiving the transaction. Refer to Appendix B for further information.
5	Date Created	Datetime format	MANDATORY FIELD – Date the CSA transaction was created or last modified.
6	Site ID	Site ID format	MANDATORY FIELD – Unique identifier representing a site in the market. Refer to Appendix B for further information.
7	Requested Effective Date	Date format	MANDATORY FIELD – Date the retailer requests the customer switch to take place.

Production Rules

The following production rules apply for the CSA transaction:
1) Data contained within a CSA transaction must adhere to the field level rules stated in Table 4-17.
2) A valid CSA transaction will be effective on:
   a) the day of arrival;
   b) midnight of the following calendar day if the CSA transaction is received after a distributor's daily transaction processing deadline and system limitations prevent the distributor from back dating the effective date of the transaction;
   c) the requested effective date if the distributor accepts future or backdated CSA transactions and the requested effective date is within the boundaries established by the distributor.
3) A CSA transaction must be accompanied with a UCI transaction, within the timeframe prescribed in Table 2-1, having the appropriate changes to customer information.
4) Where more than one CSA transaction is received by a distributor for the same site to be effective on the same day, the first valid CSA transaction to arrive must be processed as a tariff billing event.

[9] Unique circumstances for ENMAX Energy Corporation only—otherwise termination of electric services results in an enrollment/ de-enrollment transaction between retailers.

5) A UCI transaction must be processed by a distributor when it accompanies a CSA transaction of either type.

4.11 Customer Switch Receipt (CSR) Transaction

The CSR transaction provides a mechanism for distributors to notify retailers that the CSA has been either

1) accepted and processed, or
2) the status code will indicate the reason for the rejection.

The contents of the CSR transaction are provided in Table 4-18.

Table 4-18. Customer Switch Receipt (CSR) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'CSR'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the CSR transaction. This value must be unique within a distributor.
3	Sender ID	Distributor ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the distributor, or agent of the distributor, sending the transaction. Refer to Appendix B for further information.
4	Retailer ID	Retailer ID format	MANDATORY FIELD – Unique identifier for the recipient. This value must equal that of the intended retailer receiving the transaction. Refer to Appendix B for further information.
5	Date Created	Datetime	MANDATORY FIELD – Datetime the CSR transaction was created.
6	Transaction ID Reference	Number(15)	MANDATORY FIELD – Transaction ID of the original CSA transaction.
7	CSA Transaction Status Code	Char (4)	MANDATORY FIELD – Standard code to indicate acceptance or rejection of the customer switch transaction. Refer to Appendix B for further information.
8	Site ID	Site ID format	MANDATORY – Unique identifier representing a site in the market. Refer to Appendix B for further information.
9	Effective Date	Date format	CONDITIONAL FIELD – Date that the customer switch took place. If CSA Transaction Status Code = 0000, Effective Date = date customer switch took effect If CSA Transaction Status Code ≠ 0000, Effective Date = [null]

Production Rules

The following production rules apply for the CSR transaction:

1) Data contained within CSR transaction must adhere to the field level rules stated in Table 4-18.
2) Delivery and processing of the transaction will be the same as the timing of the SRN transaction as outlined by the SSC.

5 Validation and Exception Handling

This section of the code defines validation rules, validation outputs, exceptions handling procedures, and cancel/rebill procedures for the tariff bill file and associated transactions.

5.1 Tariff Bill File Validation and Notification

As prescribed in Section 2.9, distributors are obligated to validate tariff bill files according to standard file format and file content validation tests prior to transmission to retailers. Retailers, at their discretion, shall perform the validation and notification steps in accordance with the rules described in this section upon receipt of a tariff bill file. Retailers and distributors shall maintain adequate records to explain all validation failures.

Distributor release or withholding, in whole or in part of a tariff bill file and retailer acceptance, rejection, or partial acceptance of a tariff bill file will be based on the results of the following validation tests:

1) File Format – Failure of any one of these validations will result in the rejection of the tariff bill file:
   a) Validate the format of the physical attributes of the tariff bill file, including field attributes (i.e., data type and size) and tariff bill file record structure.
   b) Validate the content of the data as contained within the file in conjunction with billing history the retailer of record has compiled relating to the site, including mandatory and conditional field checks, file integrity checks (i.e., record counts and check totals), expected field values, cross field edits (e.g., conditional field population, gaps/overlaps for tariff periods contained within the file, and expected record types), and site billing continuity (i.e., cancel/rebill integrity.)
2) File Content – Failure of any one of the validations will result in the dispute of the tariff bill file.
   a) Validate the content of a tariff bill file in conjunction with other data the retailer of record has compiled relating to the site, including enrollment, tariff billing, and usage data.

5.1.1 Standard File Format Validation and Notification

Retailers shall be restricted to performing only the procedures outlined in Table 5-1 to accept or reject a tariff bill file. Failure of at least one of these validation test procedures will result in tariff bill file rejection utilizing the TBR transaction described in Section 4.5. For the purpose of these validation tests, the term "expected" means the value contained in the field must be valid as per field level definitions in Section 4.3.

Table 5-1. Standard File Format Validation Tests

Table Ref ID	Check	Test	Description	Outcome
1	File Naming Convention	Compare Tariff Bill File Name with expected Tariff Bill File Name	Tariff Bill File Name must match Tariff Bill File Name format	Pass: Tariff Bill File Name = defined Tariff Bill File Name format Fail: Tariff Bill File Name ≠ defined Tariff Bill File Name format
2	File Format	Compare file format with expected file format	Tariff Bill File format must match Tariff Bill File format	Pass: Tariff Bill File format = defined Tariff Bill File format Fail: Tariff Bill File format ≠ defined Tariff Bill File format
3	Data Type	Compare data type with expected data type	Field-level data types must match field-level data types	Pass: Field-level data types = defined field-level data types Fail: Field-level data types ≠ defined field-level data types

Table Ref ID	Check	Test	Description	Outcome
4	Record Production Sequence	Compare published record production sequence with expected record production sequence	Tariff bill file records must be presented in the correct order according to the prescribed rules (i.e., Tariff Bill File Header, Site Header, Tariff Bill Period Header, Usage Determinant, Demand Determinant, Miscellaneous Determinant, Tariff Charge, One-time Charge, Tariff Bill File Trailer)	Pass: Record production sequence = expected record production sequence Fail: Record production sequence ≠ expected record production sequence.
5	Mandatory Field Logic	Compare Tariff Bill File mandatory fields with expected Tariff Bill File mandatory fields	Mandatory fields must be populated according to prescribed rules	Pass: All mandatory fields are populated Fail: One or more mandatory fields are not populated
6	Conditional Field Logic	Compare Tariff Bill File conditional fields with expected Tariff Bill File conditional fields	Conditional fields must be populated according to declared rules (sequencing triggers) The following record elements are exempt from this test: REA Code, Power Factor	Pass: All conditional fields are populated according to conditional field rules Fail: One or more conditional fields are not populated according to conditional field rules
7	Standard Codes	Compare codes with expected Standard Codes	Fields requiring standard code population must contain values that match standard codes	Pass: Code value within standard code list Fail: Code value not within standard code list
8	Unique File Header Record ID (with previous Tariff Bill Files)[10]	Compare File Header Record ID with File Header Record IDs reported in previous Tariff Bill Files	Record ID in the Tariff Bill File Header must be unique to a distributor	Pass: File Header Record ID is unique for a distributor Fail: File Header Record ID is not unique for a distributor
9	Unique Record ID (within Tariff Bill File)	Compare Record ID with other Record IDs reported in the Tariff Bill File	All Record IDs must be unique within a Tariff Bill File	Pass: Record ID is unique within Tariff Bill File Fail: Record ID is not unique within Tariff Bill File
10	Parent ID	Compare Parent ID with expected Parent ID	Parent ID at any level within the Tariff Bill File structure must match the Record ID of the parent record	Pass: Parent ID = expected Parent ID Fail: Parent ID ≠ expected Parent ID
11	Retailer ID	Compare Retailer ID with expected Retailer ID	Retailer ID must match Retailer ID of the recipient	Pass: Retailer ID = expected Retailer ID Fail: Retailer ID ≠ expected Retailer ID
12	Distributor ID	Compare Distributor ID with expected Distributor ID	Distributor ID must match Distributor ID of the sender	Pass: Distributor ID = expected Distributor ID Fail: Distributor ID ≠ expected Distributor ID
13	Date Created	Compare Date Created with date of receipt	Date Created must be less than or equal to the date of receipt	Pass: Date Created is ≤ the date of receipt Fail: Date Created is > the date of receipt
14	Date Logic	Compare Logical To and From Dates	All Period date ranges within a Tariff Bill File must report the End Date as greater than or equal to the Start Date	Pass: Period End Date ≥ the same Period record's Start Date. Fail: Period End Date < the same Period record's Start Date

[10] This is an intended deviation from file format validation principles of evaluating content within a file.

Table Ref ID	Check	Test	Description	Outcome
15	Future Dates	Compare date values to Tariff Bill File Header Date Created	All date values within a Tariff Bill File must be equal to or less than the Tariff Bill File Header Date Created	Pass: Date values ≤ Date Created Fail: Date values > Date Created
16	Current Billing Period / Tariff Bill Period Alignment	Compare Current Billing Period declared within Site-Header to Tariff Bill Periods	The Current Billing Period Start Date and the Current Billing Period End Date must equal the earliest Tariff Bill Period Start Date and the latest Tariff Bill Period End Date, respectively, for a site (excluding cancel/rebills and original tariff bill periods that precede the end date of the last current billing period previously issued to a retailer)	Pass: Current Billing Period Start Date ≥ MIN Tariff Bill Period Start Date, and, Current Billing Period End Date = MAX Tariff Bill Period End Date Fail: Current Billing Period Start Date < MIN Tariff Bill Period Start Date, and/or Current Billing Period End Date ≠ MAX Tariff Bill Period End Date Note: Excluding cancel/ rebills and tariff bill periods that precede the end date of the last current billing period previously issued to a retailer.
17	Cancel Indicator Logic	Compare Cancel Indicator of Tariff Bill Period child records with Cancel Indicator of Tariff Bill Period	All Tariff Bill Period child records must have the same Cancel Indicator value as the parent Tariff Bill Period	Pass: Tariff Bill Period child records Cancel Indicator = Tariff Bill Period Cancel Indicator Fail: Tariff Bill Period child records Cancel Indicator ≠ Tariff Bill Period Cancel Indicator
18	Tariff Bill Period Overlap (within a Tariff Bill File)	Compare Tariff Bill Periods with other Tariff Bill Periods within a Tariff Bill File (excluding cancel/rebills)	Tariff Bill Periods for current period charges may not overlap. The Tariff Bill Period Start Date must be greater than the preceding Tariff Bill Period End Date (within a Tariff Bill File for the same site excluding cancel)	Pass: Tariff Bill Period Start Date > Tariff Bill Period End Date of previous Tariff Bill Period record (excluding cancel/rebills) Fail: Tariff Bill Period Start Date ≤ Tariff Bill Period End Date of previous Tariff Bill Period record (excluding cancel/rebills)
19	Tariff Bill Period Gap (within the Current Billing Period)	Compare Tariff Bill Periods within the current billing period	Tariff Bill Periods for the same site within the Current Billing Period must be continuous within the Tariff Bill File. Where tariff bill periods are discontinuous, the gap must be supported by an SRO followed by an SRN (both within the current billing period).	Pass: Tariff Period Start Date = the previous Tariff Bill Period record's End Date plus one day or = Current Billing Period Start Date Fail: Tariff Period Start Date ≠ the previous Tariff Bill Period record's End Date plus one day or ≠ Current Billing Period Start Date
20	Usage Period / Tariff Bill Period Alignment	Compare Usage Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date must equal the earliest Usage Period Start Date and the Tariff Bill Period End Date must equal the latest Usage Period End Date within a Tariff Bill Period	Pass: Tariff Bill Period Start Date = MIN Usage Period Start Date, and Tariff Bill Period End Date = MAX Usage Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Usage Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Usage Period End Date
21	Usage Period Overlap (within a Tariff Bill Period)	Compare Usage Periods within a Tariff Bill Period	Usage Periods within a Tariff Bill Period may not overlap. The Usage Period Start Date must be greater than the preceding Usage Period End Date	Pass: Usage Period Start Date > the previous Usage Period record's End Date Fail: Usage Period Start Date ≤ Usage Period End Date of the previous Usage Period record

Table Ref ID	Check	Test	Description	Outcome
22	Usage Period Gap (within a Tariff Bill Period)	Compare Usage Periods within a Tariff Bill Period	Usage Periods within a Tariff Bill Period must be continuous; the Usage Period Start Date must be one day greater than the preceding Usage Period record's End Date	Pass: Usage Period Start Date = the previous Usage Period record's End Date plus one day Fail: Usage Period Start Date > the previous Usage Period record's End Date plus one day
23	Demand Period / Tariff Bill Period Alignment	Compare Demand Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date and the Tariff Bill Period End Date must equal the earliest Demand Period Start Date and the latest Demand Period End Date respectively of demand determinant records (where applicable) within that Tariff Bill Period having a demand type code of either 'Billing', 'Transmission Billing', 'Distribution Billing' or 'Service Billing'	Pass: Tariff Bill Period Start Date = MIN Demand Period Start Date, and Tariff Bill Period End Date = MAX Demand Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Demand Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Demand Period End Date
24	Demand Period Overlap (within a Tariff Bill Period)	Compare Demand Periods within a Tariff Bill Period	Demand Periods for the same Demand Type and Demand UOM within a Tariff Bill Period may not overlap; the Demand Period Start Date must be greater than the preceding Demand Period End Date	Pass: Demand Period Start Date > the previous Demand Period record's End Date Fail: Demand Period Start Date ≤ Demand Period End Date of the previous Demand Period record
25	Demand Period Gap (within a Tariff Bill Period)	Compare Demand Periods within a Tariff Bill Period	Demand Periods for the same Demand Type and Demand UOM within a Tariff Bill Period must be continuous; the Demand Period Start Date must be one day greater than the preceding Demand Period record's End Date	Pass: Demand Period Start Date = the previous Demand Period record's End Date plus one day Fail: Demand Period Start Date > the previous Demand Period record's End Date plus one day
26	Charge Period / Tariff Bill Period Alignment	Compare Charge Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date must equal the earliest Charge Period Start Date and the Tariff Bill Period End Date must equal the latest Charge Period End Date within a Tariff Bill Period	Pass: Tariff Bill Period Start Date = MIN Charge Period Start Date, and Tariff Bill Period End Date = MAX Charge Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Charge Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Charge Period End Date
27	Charge Period Overlap (within a Tariff Bill Period)	Compare Charge Periods within a Tariff Bill Period	Charge periods for a single component charge (combination of tariff cross-reference code, component category code, component type code, component basis code and step number) within a Tariff Bill Period may not overlap; the Charge Period Start Date must be greater than the preceding Charge Period End Date	Pass: Charge Period Start Date > the previous Charge Period record's End Date Fail: Charge Period Start Date ≤ the previous Charge Period record's End Date
28	Charge Period Gap (within a Tariff Bill Period)	Compare Charge Periods within a Tariff Bill Period	Charge Periods for a single component charge (combination of tariff cross-reference code, component category code, component type code, component basis code and step number), having a component basis code of 'D' or 'E' within a Tariff Bill Period, must be continuous; the Charge Period Start Date must be one day greater than the preceding Charge Period record's End Date	Pass: Charge Period Start Date = the previous Charge Period record's End Date plus one day Fail: Charge Period Start Date > the previous Charge Period record's End Date plus one day

Table Ref ID	Check	Test	Description	Outcome
29	Site Header Usage Total	Compare Site Header Usage Total with expected Site Header Usage Total	Site Header Usage Total must match total of all of the site's usage in the file (including cancel/rebills)	Pass: Site Header Usage Total = sum of all 'Usage Amount' fields in the tariff bill file for a site (including cancel/rebills) Fail: Site Header Usage Total ≠ sum of all 'Usage Amount' fields in the tariff bill file for a site (including cancel/rebills)
30	Site Header Charge Total	Compare Site Header Charge Total with expected Site Header Charge Total	Site Header Charge Total must equal the sum of all of the Charge Amount fields in the file (including cancel/rebills) for a site	Pass: Site Header Charge Total = sum of all 'Charge Amount' fields in the tariff bill file for a site (including cancel/rebills) Fail: Site Header Charge Total ≠ sum of all 'Charge Amount" fields in the tariff bill file for a site (including cancel/rebills)
31	Tariff Bill Period Header Usage Total	Compare Tariff Bill Period Header Usage Total with expected Tariff Bill Period Header Usage Total	Tariff Bill Period Header Usage Total must equal the sum of all 'Usage Amount' fields within a tariff bill period	Pass: Tariff Bill Period Header Usage Total = sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period Fail: Tariff Bill Period Header Usage Total ≠ sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period
32	Tariff Bill Period Header Charge Total	Compare Tariff Bill Period Header Charge Total with expected Tariff Bill Period Header Charge Total	Tariff Bill Period Header Charge Total must equal the sum of all 'Charge Amount' fields within the tariff bill period	Pass: Tariff Bill Period Header Charge Total = sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period Fail: Tariff Bill Period Header Charge Total ≠ sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period
33	File Trailer File Record Count	Compare File Record Count with expected File Record Count	File Record Count must match the number of records in the file	Pass: File Record Count = number of records in the tariff bill Fail: File Record Count ≠ number of records in the tariff bill
34	File Trailer Charge Total	Compare File Trailer Charge Total with expected File Trailer Charge Total	File Trailer Charge Total must equal the sum of all 'Charge Amount' fields in the file (including cancel/rebills)	Pass: File Trailer Charge Total = sum of all 'Charge Amount' fields in both tariff charge and one-time charge records within the tariff bill file (including cancel/rebills) Fail: File Trailer Charge Total ≠ sum of all 'Charge Amount' fields in both tariff charge and one-time charge records within the tariff bill file (including cancel/rebills)
35	Billing Demand Determinant Requirement	Check for the existence of 'Billing', 'Transmission Billing' or 'Distribution Billing' demand determinants where tariff charge records are based on Demand	If tariff charge records report Component Basis Code of Demand, 'Billing', 'Transmission Billing', 'Distribution Billing' or 'Service Billing' demand determinant records must also be disclosed within the same tariff bill period	Pass: 'Billing', 'Transmission Billing', 'Distribution Billing' or 'Service Billing' demand determinant records present where Tariff charge records report Component Basis Code = Demand Fail: 'Billing', Transmission Billing', 'Distribution Billing' or 'Service Billing' demand determinant records not present where Tariff charge records report Component Basis Code = Demand

Table Ref ID	Check	Test	Description	Outcome
36	Usage Determinant Requirement	Check for the existence of a usage determinant record within each tariff bill period	One or more usage determinant records must be present for each tariff bill period	Pass: Usage determinant record exists to support each tariff bill period Fail: Usage determinant record does not exist to support each tariff bill period
37	Calculated Values	Check calculated values with expected value	Calculated field values based on a calculation involving one or more fields in the tariff bill file must match the expected calculated value (i.e., Charge Amount = Component Unit Price x Time Factor x Component Billed Quantity)	Pass: Calculated field value = expected calculated value Fail: Calculated field value ≠ expected calculated value
38	Child Record Values	Check child record value with parent record value	Where the same field name exists in parent and child records within the Tariff Bill File, child record field values must match the field values of the parent record (e.g., Site ID in the Tariff Bill Period must match the Site ID in the Site Header; likewise, the Site ID in the Usage Determinant, Demand Determinant, Miscellaneous Determinant and Tariff Charge records must match the Site ID in the Tariff Bill Period Header record)	Pass: Child record field value = Parent record field value Fail: Child record field value ≠ Parent record field value
39	Cancel Cross-Reference Logic	Compare contents of the Tariff Bill Period Reference ID and/or One-time Charge Reference ID with expected results	A Tariff Bill Period Header or One-time Charge record flagged with Cancel Indicator = Y must report a valid previous Tariff Bill Period Record ID or One-time Charge Record ID respectively	Pass: Tariff Bill Period Reference ID = a valid previous Tariff Bill Period Record ID, and/or One-time Charge Reference ID = a valid previous One-time Charge Record ID Fail: Tariff Bill Period Reference ID ≠ a valid previous Tariff Bill Period Record ID and/or One-time Charge Reference ID ≠ a valid previous One-time Charge Record ID
40	Cancel Value Logic	Compare Tariff Bill File records with Cancel Indicator = Y with the value of Tariff Bill File records being cancelled	Tariff Bill File records flagged with Cancel Indicator = Y must match the value of records, with the following element exceptions, Ratchet Datetime, Ratchet Period Months, Demand Contract End Date, Power Factor and Miscellaneous Determinant Type Code, in a previously sent tariff bill file that are being cancelled, with amount fields being reverse in sign	Pass: Values of Tariff Bill File records flagged with Cancel Indicator = Y = values of records being cancelled Fail: Values of records flagged with Cancel Indicator = Y ≠ values of records being cancelled
41	Current Billing Period Cancel Logic	Check for the existence of cancelled records within the current billing period date range	All cancelled records must be presented in the timeframe preceding the current billing period	Pass: Cancelled records do not exist within the current billing period date range Fail: Cancelled records exist within the current billing period date range.
42	Usage Period / Charge Period Alignment for Energy Based Charges	Align usage period with energy based charge periods	A usage period must exist that starts on the same day as a charge period having a component basis code equal to 'E' and a usage period must exist that ends on the same day as that same charge period.	Pass: Usage period exists that starts on the same day as a charge period having a component basis code equal to 'E' and a usage period exists that ends on the same day as that same charge period. Fail: Usage period starting on same day as the charge period having a component basis code equal to 'E' does not exist, or a usage period ending on same day as that same charge period does not exist.

Table Ref ID	Check	Test	Description	Outcome
43	Current Billing Period Content	Compare current billing period content against expected results	Any tariff bill periods not already presented to a retailer must be fully contained within the current bill period, excluding enrollment corrections.	Pass: Start date of the original tariff bill period ≥ start date of the current billing period AND end date of the original tariff bill period ≤ end date of the current bill period. (excluding enrollment corrections and energization affecting initial billing) Fail: Start date of the original tariff bill period ≤ start date of the current billing period AND end date of the original tariff bill period ≥ end date of the current bill period. (excluding enrollment corrections and energization affecting initial billing)
44	Tariff Bill File Reference ID	Compare Tariff Bill File Reference ID with most recently rejected tariff bill file	The Tariff Bill File Reference ID must equal the tariff file header Record ID of the most recently rejected tariff bill file for that distributor	Pass: Tariff Bill File Reference ID = the Record ID of the file header record of the most recently rejected tariff bill file for that distributor Fail: Tariff Bill File Reference ID ≠ the Record ID of the file header record of the most recently rejected tariff bill file for that distributor

5.1.2 Standard File Content Validation and Notification

Retailers shall be restricted to performing only the procedures outlined in Table 5-2 to dispute tariff bill file content. Failure of at least one of these validation test procedures will result in a tariff bill file dispute utilizing the TBD transaction described in Section 4.7. These disputes will not affect a distributor's payment terms with the retailer and may not be used as justification for nonpayment of a distributor invoice. Distributors are not required to respond to these disputes in an automated fashion. For the purpose of these validation tests, the term "expected" means the value contained in the field must be valid as per field level definitions in Section 4.3.

Table 5-2. Standard File Content Validation Tests

Table Ref ID	Check	Test	Description	Outcome
1	Unique Record ID (with previous Tariff Bill Files)	Compare Record ID with existing Record IDs with those reported in previous Tariff Bill Files (excluding cancels)	All Record IDs, must be unique to a distributor	Pass: Record ID is unique for a distributor Fail: Record ID is not unique for a distributor
2	Site Ownership	Compare site ownership for the Tariff Bill Period or One-time Charge	Retailer must be assigned as Retailer of Record for the site for the entire Tariff Bill Period or One-time Charge	Pass: Cross-reference to Enrollment transactions confirms site ownership for entire Tariff Bill Period or One-time Charge Fail: Cross-reference to Enrollment transactions disputes site ownership for entire Tariff Bill Period or One-time Charge
3	Site Header Bill Cycle ID	Compare Bill Cycle ID with valid Bill Cycle IDs for that distributor	Bill Cycle ID reported for that site in the Tariff Bill File must match any one of the Bill Cycle IDs reported in the Tariff Billing Calendar File for the distributor	Pass: Bill Cycle ID = Valid Bill Cycle IDFail: Bill Cycle ID ≠ Valid Bill Cycle ID

Table Ref ID	Check	Test	Description	Outcome
4	Tariff Bill Period Overlap (with previous Tariff Bill Files)	Compare Tariff Bill Periods with previously sent Tariff Bill File Tariff Bill Periods	Tariff Bill Periods within Tariff Bill File may not overlap with any Tariff Bill period previously sent and not cancelled	Pass: Tariff Bill Period within Tariff Bill File does not overlap a previously sent Tariff Bill Period that is not cancelled Fail: Tariff Bill Period within Tariff Bill File overlaps a previously sent Tariff Bill Period that is not cancelled
5	Tariff Bill Period Gap (with previous Tariff Bill Files)	Compare Tariff Bill Periods with other Tariff Bill File Tariff Bill Periods	Tariff Bill Periods must be continuous, except for periods of time accounted for by enrollment events	Pass: Gaps are checked by a retailer against enrollment transactions and validated following file load Fail: Gaps are checked by a retailer against enrollment transaction and rejected following file load
6	Invalid Usage Value	Compare consumption with peak demand	Usage value may not exceed a calculated value if the peak was continuously hit during the billing period (Limited to evaluating peak demand or metered demand type whose reporting demand values are greater than 0)	Pass: # of hours in demand period x Demand Value ≥ Usage Amount Fail: # of hours in demand period x Demand Value < Usage Amount
7	Tariff Bill Period Events	Compare Tariff Bill Periods presented with expected results	Tariff Bill Periods must be presented (i.e., larger periods broken into smaller periods) according to the Tariff Bill Period Events articulated in Table 3-1 Note that a distributor may view all Tariff Billing Events as they relate to presentation of tariff charges; however, a retailer has a limited view of the same events and is therefore limited in capacity to perform complete validation tests according to the Tariff Billing Event rules	Pass: Tariff Bill Periods account for all Tariff Bill Period Events that occurred in the Current Billing Period Fail: Tariff Bill Periods do not account for all Tariff Bill Period Events that occurred in the Current Billing Period
8	Usage Period Events	Compare Usage Periods presented with expected results	Usage Periods must be presented (i.e., larger periods broken into smaller periods) according to the Usage Period Events articulated in Table 3-1 Note that a distributor may view all Tariff Billing Events as they relate to presentation of tariff charges; however, a retailer has a limited view of the same events and is therefore limited in capacity to perform complete validation tests according to the Tariff Billing Event rules	Pass: Usage Periods account for all Usage Period Events that occurred in the Tariff Bill Period Fail: Usage Periods do not account for all Usage Period Events that occurred in the Tariff Bill Period
9	Charge Period Events	Compare Charge Periods presented with expected results	Charge Periods must be presented (i.e., larger periods broken into smaller periods) according to the Charge Period Events articulated in Table 3-1 Note that a distributor may view all Tariff Billing Events as they relate to presentation of tariff charges; however, a retailer has a limited view of the same events and is therefore limited in capacity to perform complete validation tests according to the Tariff Billing Event rules	Pass: Charge Periods account for all Charge Period Events that occurred in the Tariff Bill Period Fail: Charge Periods do not account for all Charge Period Events that occurred in the Tariff Bill Period

Table Ref ID	Check	Test	Description	Outcome
10	Dial Readings	Compare From Reading of Usage Determinant record with To Reading of previous Usage Determinant record	For a cumulative metered site, the From Reading value on a usage determinant record must match the To Reading value on the previous usage determinant record for the same meter (except when the site was de-energized for the previous period, the site is billing for the first time, or in the case of a cancel/rebill)	Pass: From Reading value of current usage period record = To Reading value of previous usage determinant record Fail: From Reading value of current usage period record ≠ To Reading value of previous usage determinant record
11	Duplicate One-time Charge	Compare one-time charge with previously received one-time charges	One-time charge records flagged with Cancel Indicator = 'N' must not overlap with previously received one-time charges for the same charge code, site, and charge date and have not been cancelled	Pass: One-time charge does not overlap with a one-time charge that has not been cancelled within the current, or a previously sent, tariff bill file Fail: One-time charge overlaps with a one-time charge that has not been cancelled within the current, or a previously sent, tariff bill file
12	Invalid Meter Rollover	Compare current meter read to previous meter read	If the current meter read is less than the previous meter read then the dial difference must be less than 70% of the meter for a reading period of 5 months or less	Pass: Dial Difference < Max Reading × 70% and End read date – Start Read Date ≤ (365/12) × 5 Fail: Dial Difference ≥ Max Reading × 70% and End Read Date – Start Read Date ≤ (365/12) × 5. Where Max Reading = (10 to the power of the number of dials) – 1.

5.1.3 Other Tariff Bill File Validation Tests

Distributors are required to perform other validation tests on the tariff bill file according to their internal processes or business rules to confirm reasonableness of estimated usage or tariff charges. Failure of these other validation tests justifies withholding presentation of the site(s) and associated charges from a tariff bill file.

Retailers are required to perform other validation tests on the tariff bill file according to their internal process or business rules; however, results from such validation tests are not supported by the dispute mechanism defined in this code. Follow-up with distributors relating to validation test failures as a result of these other validation tests must be performed manually.

5.2 Customer Switch Advice (CSA) Validation and Notification

Following the application of the CSA validation test procedures, a distributor will transmit a CSR transaction, as described in Section 4.11, indicating acceptance or rejection of the original CSA transaction.

5.2.1 Customer Switch Advice (CSA) Validation Tests

Upon receipt of a CSA transaction, a distributor will validate the transaction content according to the tests outlined in Table 5-4. For the purpose of these validation tests, the term "expected" means that the value contained in the field must be valid as per field level definitions in Section 4.10.

Table 5-3. CSA Transaction Validation Tests

Table Ref ID	Check	Test	Description	Outcome
1	Retailer ID	Compare Retailer ID with expected Retailer ID	Retailer ID must be a valid Retailer ID in the province of Alberta and the retailer assigned as Retailer of Record	Pass: Retailer ID = expected Retailer ID Fail: Retailer ID ≠ expected Retailer ID
2	Distributor ID	Compare Distributor ID with expected Distributor ID	The site in question must be within the distributor's service area	Pass: Distributor ID = expected Distributor ID Fail: Distributor ID ≠ expected Distributor ID
3	Site ID	Compare Site ID with expected Site ID	Site ID must be a valid Site ID in the province of Alberta	Pass: Site ID = expected Site ID Fail: Site ID ≠ expected Site ID
4	Site Ownership	Compare site ownership for the site ID	Retailer must be assigned as Retailer of Record for the site for the date in which the CSA transaction is received	Pass: Cross-reference to Enrollment transactions confirms site ownership Fail: Cross-reference Enrollment transactions disputes site ownership
5	Transaction ID Uniqueness	Compare Transaction ID with previously received transaction IDs	A CSA Transaction ID must be unique within a retailer	Pass: Transaction ID is unique Fail: Transaction ID is not unique
6	Date Format	Compare date format with expected date format	The CSA date created field must contain a valid date, and this date must not exceed the current date and time	Pass: Date is in the correct date format and is less than the current date time Fail: Date is not in the correct date format or represents a future date
7	Requested Effective Date	Compare Requested Effective Date with Distributor Boundaries	The Requested Effective Date of a CSA Transaction must fall within the boundaries established by the receiving distributor.	Pass: Requested Effective Date is within distributor boundaries Fail: Requested Effective Date is not within distributor boundaries

5.3 Exception Handling

This section of the code provides direction for responding to reported exceptions.

5.3.1 Tariff Bill Reject (TBR) Transaction

Upon receipt of a TBR transaction, a distributor will validate the reject notification and either

1) send a TRN transaction advising the retailer that the rejection of a specific tariff bill file was invalid, in which case the distributor would proceed with distributor invoicing, or
2) send a TRN transaction advising the retailer that the rejection of a specific tariff bill file was valid, in which case the distributor would correct the tariff bill file format error and resubmit the tariff bill file. The distributor would also delay distributor invoicing until a valid TBA transaction was received from the retailer.

In all of the above circumstances, a distributor may employ a manual or automated process consistent with its standing operating practices.

5.3.2 Tariff Bill Dispute (TBD) Transaction

Upon receipt of a TBD transaction, a distributor will either

1) advise the retailer, with a supporting explanation, that the dispute is invalid, or

2) correct the reported file content error(s) according to the cancel/rebill processing rules.

In all of the above circumstances, a distributor may employ a manual or automated process consistent with its current operating practices. However, provision of cancel/rebill information must be presented according to the format and production rules of the tariff bill file.

5.3.3 Customer Switch Receipt (CSR) Transaction

Upon receipt of a CSR transaction, a retailer will either

1) confirm acceptance and validate that the switch is reflected in an upcoming bill, or
2) confirm the reason for rejection of the CSA transaction, if necessary, by manually contacting the distributor.

5.4 Cancel/Rebill

A 'cancel' or 'cancel and rebill' of previously issued tariff bill file records for a specific site may be required to

1) resolve accepted retailer disputes of original/rebilled charges or charges being cancelled;
2) resolve distributor-initiated corrections.

5.4.1 General Cancel/Rebill Production Rules

1) Cancels and rebills may be issued for tariff-based charges and one-time charges. The cancel and rebill of tariff-based charges is independent from the cancel and rebill of one-time charges for the same site and time period.
2) Where possible, a distributor must attempt to send the tariff bill period or one-time charge rebill records in the same tariff bill file as the associated cancel records. Exceptions for prior period adjustments should be rare.
3) Original or rebilled charges presented within a tariff bill file cannot be cancelled within the same tariff bill file (i.e., no redundant charge and cancel presentation).
4) All cancel/rebills processed by a distributor must be sent to retailers as part of a tariff bill file according to the record production sequence outlined in Appendix B.

5.4.1.1 Tariff Charge Cancel/Rebill Production Rules

Cancelled tariff period charges must

1) be presented according to tariff bill period, meaning that the tariff bill period header record and its associated child records (i.e., usage determinants, demand determinants, miscellaneous determinants, and tariff charges) must be included as part of the cancel;
2) have a new tariff bill period ID assigned;
3) have the cancel indicator of the tariff bill period header record and its associated child records set to Y;
4) match the content of the original tariff bill file's tariff bill period header values with the exception of the following fields: Record ID, Parent ID, Tariff Bill Period Reference ID, Cancel Indicator, and Cancel Reason Code;
5) provide a cross-reference to the original tariff bill period ID being cancelled utilizing the Tariff Bill Period Reference ID field in the tariff bill period header record;
6) populate a reason code as an explanation for the cancellation utilizing the Cancel Reason Code field of the tariff bill period header record;
7) match the determinant and charge values of the original tariff bill period child records;

8) apply a sign reversal to the following, when applicable:
   a) Tariff Bill Period Header Record – Usage Total
   b) Tariff Bill Period Header Record – Charge Total
   c) Usage Determinant Record – Usage Amount
   d) Demand Determinant Record – Demand Value
   e) Miscellaneous Determinant Record – Unit Quantity
   f) Tariff Charge Record – Component Billed Quantity
   g) Tariff Charge Record – Charge Amount
9) be presented either
   a) on an off-cycle basis for disputes relating to the most recently billed period, or
   b) on an off-cycle basis or according to the site's scheduled billing cycle for prior billing period adjustments.

Rebilled tariff periods charges must
1) be presented according to tariff bill period, meaning that the tariff bill period header record and its associated child records (i.e., usage determinants, demand determinants, miscellaneous determinants, and tariff charges) must be included as part of the rebill;
2) have a new tariff bill period ID assigned;
3) follow the standard production rules for new tariff charge presentation—this means that tariff bill period events apply equally to rebilled charges and to original charges; and
4) be presented either
   a) on an off-cycle basis for retailer disputes relating to the most recently billed period and only presented up to the end date of the disputed period, or
   b) on an off-cycle basis or according to the site's scheduled billing cycle for prior billing period adjustments.

5.4.1.2 One-time Charge Cancel/Rebill Production Rules

Cancelled one-time charges must
1) have a new one-time charge ID assigned;
2) have the cancel indicator of the one-time charge record set to Y;
3) match the content of the original one-time charge values with the exception of the following fields: Record ID, Parent ID, Cancel Indicator, One-time Charge Reference ID, and Cancel Reason Code;
4) provide a cross-reference to the original one-time charge ID being cancelled utilizing the One-time Charge Reference ID field in the one-time charge record;
5) populate a reason code as an explanation for the cancellation utilizing the Cancel Reason Code field of the one-time charge record;
6) apply a sign reversal to the Charge Amount field value of the one-time charge record; and
7) be presented either
   a) on an off-cycle basis for disputes relating to the most recently billed period, or
   b) according to the site's scheduled billing cycle for prior billing period adjustments.

Rebilled one-time charges must
1) have a new one-time charge ID assigned;
2) follow the standard production rules for new one-time charge presentation; and
3) be presented on an off cycle basis according to the site's scheduled billing cycle.

5.4.2 Responses to Valid Retailer Disputes

In response to a valid retailer dispute with respect to a specific site, a distributor must adjust tariff charges, as well as one-time charges, according to the procedures outlined in this section of the code. Following receipt and confirmation of a TBD transaction identifying at least one tariff bill file content dispute, a distributor must

1) cancel the applicable disputed tariff charges or one-time charge to the retailer who initiated the dispute and;
2) rebill the applicable tariff charges or one-time charge to the retailer initiating the dispute, a different retailer, or both.

5.4.3 Distributor-Initiated Correction

In situations where a distributor initiates a restatement of tariff charges (i.e., reversal and/or reapplication of tariff charges for an entire rate class), a distributor is obligated with all due diligence to provide advance or concurrent notice of the change to the affected retailers. In this communication the distributor must also provide the retailer with the anticipated number of sites affected by the restatement of tariff charges. Notice will be provided via standard distributor communications processes and media. Otherwise, the rules for producing and presenting prior period adjustments as a result of retailer reported disputes apply.

5.4.4 Charges Relating to Preimplementation Periods

As each distributor is expected to implement unique data conversion strategies, a standard approach to presenting adjustments for preimplementation charges is not a requirement of this code. Appendix E outlines the process for the distributor to initiate and process adjustments for preimplementation periods.

6 Market Readiness

This section defines the procedures, roles, and responsibilities to evaluate market readiness to transact according to this code commencing July 1, 2006. Market readiness will be evaluated according to each party's

1) compliance plan, reporting its intent to comply with the code, and
2) pre-transition review results.

For the purposes of this section, a regulated party to this code refers to a distributor or a retailer carrying out the function of a regulated rate provider that falls under the EUB's jurisdiction.

6.1 Compliance Plan

6.1.1 Compliance Plan Requirements

All regulated parties must, while other parties to this code may,

1) prepare a compliance plan confirming
   a) the role (distributor, retailer, ISO or ISO customers) the party is performing with respect to this code,
   b) that the party is aware of and understands its code obligations,
   c) the party's intent to comply with the specific obligations, as defined in Section 2, and process and transactional requirements, as defined in Sections 3, 4, and 5, or Appendix J for the ISO or ISO customers.
   d) either
      i) the party's intent to issue a self-certification statement, as prescribed in Section 7, or
      ii) the timing by which the party will be prepared to certify that it has met code requirements by issuing a self-certification statement, as defined in Section 7, and
   e) the name, postal address, phone number, and e-mail address of the senior authority accountable for compliance with this code;
2) file its compliance plan with the EUB on or before September 23, 2005; and
3) receive approval of its compliance plan from the EUB, if the party filing its compliance plan is a regulated party.

6.1.2 Changes to Compliance Plan

Each party regulated by this code must keep its respective compliance plan up to date and must make changes to the compliance plan to reflect changes in circumstances, EUB-directed changes, and changes to this code. A change to a compliance plan must be submitted to the EUB for approval within 30 calendar days following a change in circumstances, the publication of an approved exemption, or an EUB-directed change.

6.1.3 Approval by the EUB

The EUB may approve the compliance plan of a party regulated by this code, with or without conditions, and the plan will remain in effect for the period prescribed by, or until revoked by, the EUB.

6.1.4 Publication of Compliance Plan

The EUB will make available to the public some or all of the contents of a compliance plan submitted to it by a party regulated by this code.

6.1.5 Temporary Compliance Exemptions

A regulated party may apply to the EUB for a temporary exemption from all or any provision of this code. The EUB will not approve an exemption unless the EUB is satisfied that

1) it is in the public interest to do so,
2) the exemption does not significantly affect the obligations of the regulated party or the obligations can be or will be met in other ways for the duration of the exemption, and
3) the exemption does not affect the obligation of the regulated party to comply with the Regulated Default Supply Regulation (AR135/2004).

The EUB will publish all requests for a temporary exemption and seek comments from interested stakeholders prior to considering the exemption request. The EUB may approve an exemption with or without conditions, and the exemption will remain in effect for the period of time specified by, or until revoked by, the EUB. The EUB make available on its Web site all approved exemptions.

6.1.6 Emergency Exceptions

Any action taken by a party regulated by this code in response to an emergency that threatens public safety, the safety of its respective officers, employees, agents, or contractors, or the physical integrity of its facilities or system reliability does not contravene this code or a compliance plan.

6.2 Pre-Transition Review

Prior to the code coming into effect, the EUB will establish a process and timeline that prescribes the manner through which a party regulated by this code must evaluate and report its readiness to make the transition to code-compliant systems and processes.

7 Self-Certification

7.1 Self-Certification Statement – Transition Complete

Each party regulated by the code will complete deployment of systems and processes compliant with the requirements of the code once Directive 012 comes into effect on July 1, 2006. Each party regulated by the code will certify, following deployment and a normalization period, that its systems and processes have been developed in accordance with the requirements of the code by filing with the EUB a self-certification statement. The EUB will establish a process and timeline that prescribes the manner through which a party regulated by this code must certify achievement of code requirements.

7.2 Authority

The self-certification statement will be signed by the President, Chief Executive Officer, or Chair of the Board of Directors of the party regulated by this code.

7.3 Failure to Submit

If a regulated party is unable to file a self-certification statement indicating deployment of code-compliant systems and processes, that regulated party is required to file with the EUB a letter signed by its President, Chief Executive Officer, or Chair of the Board of Directors setting out the reasons why a self-certification statement has not been signed and submitted. This letter must detail the extent to which system and process have been deployed and the expected date of achieving full compliance.

7.4 Code in Effect

For the purposes of Section 7.1 a reference to the code, is to the code in effect on the date that the regulated party files its self-certification statement with the EUB.

8 Future Code Topics

It is contemplated that future versions of this code will provide standard procedures for the following:

1) imposing an administrative charge on a retailer by distributors if the EUB considers the action or complaint of a retailer related to this code to be frivolous or vexatious;
2) application of marketwide standard usage estimation methodologies and tolerance levels;
3) aligning usage estimation methodology between settlement and tariff billing processes;
4) cancel/rebill processing to correct usage and tariff charges following the use of a usage estimate;
5) disclosure to retailers by distributors of site charges withheld from presentation in a published tariff bill file in an automated fashion;
6) reporting, resolving, and/or escalating code-related infractions, including roles and responsibilities, contact information and the procedures for direct inquiry, direct complaint, and escalation to the EUB;
7) monitoring and reporting code compliance;
8) assessing penalties and awarding remedies for noncompliance; and
9) processing cancel/rebills > 365 days old for RRT customers.

Appendix A Estimation Methodology & Validation Thresholds

In the absence of a standard market estimation approach, the purpose of Appendix A is to provide retailers in the Alberta electricity and natural gas markets with visibility into the methodologies, variables, and thresholds employed by distributors in the production of usage estimates where actual meter reads are not available.

A1 ATCO Electric Limited

A1.1 Estimation Methodology

ATCO-CIS ESTIMATING FACTORS
Heat Sensitive Estimate Factor

If the site usage is heat sensitive, the following components are used in the calculation of the estimating factor:

Degree Days
Base Load Percentage (currently set at 74% Gas and 77.2% Electric)
Heat Load Percentage (currently set at 26% Gas and 22.8% Electric)

The calculation of the Heat Sensitive Estimating Factor for 30-day charge period is:

((Degree Days in Period / Degree Days for previous year) * Heat Load)) + ((% Of Base Load / 365) * Number of Days in Period))

ATCO CIS calculates the estimate factor at cycle billing time. The estimate factor is based on 30-day billing period.

Non-Heat Sensitive Estimate Factor

If the site usage is non-heat sensitive, ATCO Gas and ATCO Electric determine the estimate factors. Each day the estimating factor is entered into ATCO-CIS to be used for cycle billing. The estimate factors are based on 30-day charge period.

ESTIMATED ENERGY CALCULATION

In ATCO-CIS, energy consumption is estimated when actual meter reading is not available for usage calculation. The estimated consumption is calculated as:

Estimating Factor = See formula above for heat sensitive and non-heat sensitive services

Raw Estimate (30 days) = Annual Consumption * Estimating Factor for Usage Period

Raw Estimate (actual days) = Raw Estimate (30 days)/30 * Number of Days in Charge Period

Net Reading Conversion = Raw Estimate / Billing Constant

Estimated Consumption = Reading Conversion * Billing Constant

Example of Estimating Consumption

	GAS	ELECTRIC
Days in Charge Period	29 days	29 days
Annual Consumption:	150 GJ	3500 kWh
Estimating Factor	.171	.145
Billing Constant	1.05462	1.0
Raw Estimate (30 days)	150 * .171 = 25.65 GJ	3500 * .145 = 507.50 kWh
Raw Estimate (actual days)	25.65 / 30 * 29 = 24.80 GJ	507.50 / 30 * 29 = 490.58 kWh
Net Reading Estimate	24.80/1.05462 = 23.51	490.58 * 1 = 490.58
Estimated Consumption	24 * 1.05462 = 25 GJ	491 * 1 = 491 kWh

Annual Consumption

ATCO CIS has the capability to keep two sets of Annual consumption. One is the Manually Entered Annual Consumption and the other is the System Calculated Annual Consumption. Annual consumption is used in estimating usage when an actual meter reading is not available. Annual consumption data stays with the service site. Therefore, customers moving from one location to another will inherit the annual consumption of the new site.

Manually Entered Annual Consumption

Generally, Manually Entered Annual Consumption can be entered into ATCO CIS and override the System Calculated Annual Consumption for a period of time. During that time, ATCO CIS will use the Manually Entered Annual Consumption for usage estimation. At the same time, ATCO CIS will continue to update the System Calculated Annual Consumption. The following examples are situations when Manually Entered Annual Consumption is used:

- New site without enough history to calculate annual consumption
- The consumption pattern of the site changed and the current System Calculated Annual Consumption based on past history no longer represents the current usage pattern

In most case, the manually entered annual consumption will be in effect for 180 days and then the system will switch to using system calculated annual consumption.

System Calculated Annual Consumption

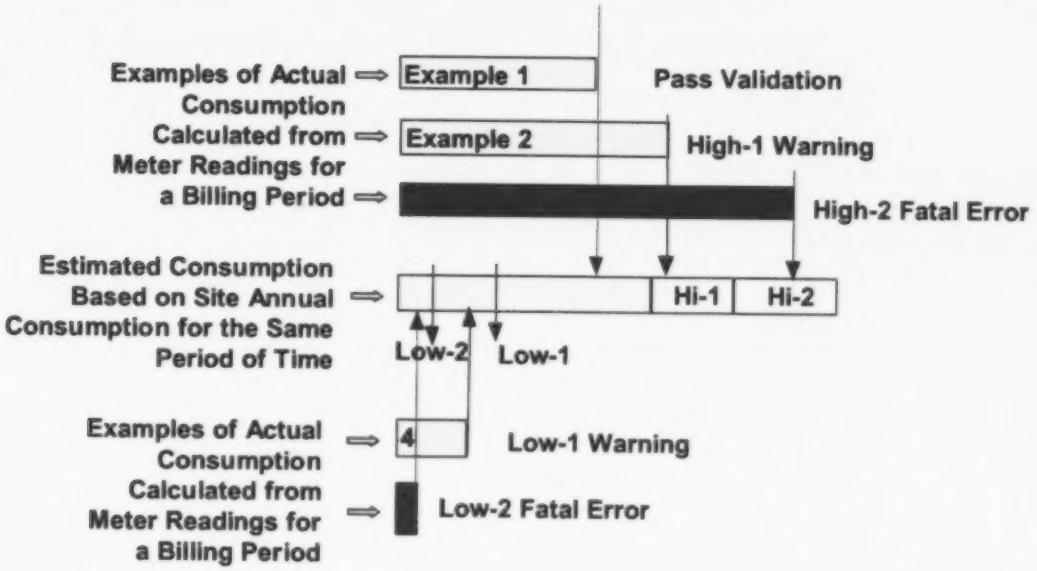
ATCO CIS updates the System Calculated Annual Consumption for a site whenever an actual usage is used for charge calculation. The System Calculated Annual Consumption is a rolling 12-month accumulated consumption for a site. ATCO CIS totals 12 months or up to 425 days of consumption or as much history available (if less than 12 months).

System Calculated Annual Consumption =
(Total consumption accumulated/Total number of days usage is accumulated) *365

A1.2 Meter Read Validation Thresholds

ATCO's philosophy behind the energy consumption high-low verification is to compare the actual measured consumption to an estimated consumption for the same period based on the site consumption history. If the actual consumption is outside of the tolerance ranges ATCO CIS will either generate a warning or fatal error for the meter reading. A warning means that the consumption requires review but will be used for billing. A fatal error means the consumption requires investigation and will **not** be used for billing.

Meter Read Validation in ATCO CIS



Here are some definitions of terms:

- **Annual Consumption**: The 365 days of system calculated energy consumption for a site based on actual usage received from MDM. Manual estimated annual consumption can be determined if there is not enough consumption history available for the site

- **Estimation Factor**: The percentage of annual consumption that the charge period is estimated to consume

- **Number of Days in Charge Period**: The number of days between the last charge period end date to the current charge period end date.

- **Added Usage**: Base energy usage not affected by temperature and is provided by the client

VALIDATE METER READING

If the number of digits read is more than the number of dials on the meter, the meter reading is a miss-read meter reading. Reject the meter reading.

Meter readings are converted to energy usage using the following formula:
Net Reading Measurement = Current Meter Reading – Previous Meter Reading used for billing
If Net Reading Measurement < 0 test for meter wrap around.

Meter Wrap-around Test

The Maximum Meter Capacity Range calculation for energy is based on the number of dials on the Meter Function and the Maximum Meter Capacity Factor. If the Meter Capacity Factor is set at 70% it means that the consumption for an average charge period should not exceed 70% of the capacity of the meter.

Max Registered Read for Meter =
(10**(number of dials) - 1) (i.e.,: 9999 for 4 dials or 99999 for 5 dials)

Adjusted Net Reading Measurement = Max Registered Read for Meter + Net Reading Measurement

Max Meter Capacity Range =
Max Registered Read for Meter * Billing Multiplier * Max Meter Capacity Factor / 30 days * Number of Days in Charge Period

Example:
Number of Dials = 4
Meter Capacity Factor = 70%
Billing Multiplier = 1
Number of Days in Charge Period = 31

Max Registered Read for Meter = 10**4 –1 = 9999
Meter Capacity Range =
(9999 * 1 * 0.7) / 30 * 31
= 9999 * 0.7 * 1 / 30 * 31
= 7233 kWh

If Adjusted Net Reading Measurement > Meter Capacity Range
The meter reading is a misread meter reading. Reject the meter reading.

If Adjusted Net Reading Measurement <= Meter Capacity Range
Set the Net Reading Measurement = Adjusted Net Reading Measurement
Proceed to calculate energy usage

CALCULATE ENERGY USAGE

Energy Usage = Net Reading Measurement * Conversion Factor (or Billing Multiplier)

Example 1:
Previous Meter Reading used for billing = 3290
Current Meter Reading = 3850
Billing Multiplier = 1
Net Reading Measurement = 3850-3290 = 560
Energy Usage = 560 * 1 = 560

Example 2:
Previous Meter Reading used for billing = 3290
Current Meter Reading = 3270
Billing Multiplier = 1
Max Registered Read for Meter = 9999
Meter Capacity Range = 6999
Net Reading Measurement = 3270-3290 = -20
Net Reading Measurement < 0 perform meter wrap-around test
Adjusted Net Reading Measurement = 9999 + (-20) = 9979
Adjusted Net Reading Measurement > 6999
The meter reading is a misread meter reading. Reject the meter reading.

Example 3:

Previous Meter Reading used for billing = 8890
Current Meter Reading = 10
Billing Multiplier = 1
Max Registered Read for Meter = 9999
Meter Capacity Range = 6999
Net Reading Measurement = 10-8890 = -8880
Net Reading Measurement < 0 perform meter wrap-around test
Adjusted Net Reading Measurement = 9999 + (-8880) = 1119
Adjusted Net Reading Measurement < 6999
Net Reading Measurement = 1119
Energy Usage = 1119 * 1 = 1119 kWh

HI/LOW ENERGY USAGE VALIDATION

Estimated Usage Calculation

If the site usage is heat sensitive, the following components are used in the calculation of the estimating factor:

- Degree Days
- Base Load Percentage (currently set at 74% Gas and 77.2% Electric)
- Heat Load Percentage (currently set at 26% Gas and 22.8% Electric)

The Heat Sensitive Estimating Factor =
((Degree Days in Period / Degree Days for previous year) * Heat Load)) + ((% of Base Load / 365) * Number of Days in Period))

Estimated Charge Period Energy Usage =
Annual Consumption * Estimate Factor/ 30 days * Number of Days in Charge Period

Hi/Low Range Calculation

The HI/LO Range calculation for energy validation is based on Annual Consumption.
Energy usage is validated against the HI/LO ranges. The values of the validation factors can vary by season. The following are the energy usage validation factors:

- High-1 Consumption Factor used for calculating High-1 Consumption Range
- High-2 Consumption Factor used for calculating High-2 Consumption Range
- Low-1 Consumption Factor used for calculating Low-1 Consumption Range
- Low-2 Consumption Factor used for calculating low-2 Consumption Range

For example:

High-1 factor of 2.0 means a warning will be produced if the usage received from the distributor is higher than two (2) times estimated usage (based on annual consumption) for the billing period.

High-1 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x High-1 Consumption Factor

High-1 Consumption Range is the lowest of the calculated **High-1 Consumption Range and** the **Annual Consumption**

High-2 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x High-2 Consumption Factor

High-2 Consumption Range is the lowest of the calculated **High-2 Consumption Range and** the **Annual Consumption**

Low-1 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x Low-1 Consumption Factor

Low-2 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x Low-2 Consumption Factor

VALIDATE ENERGY USAGE USING HI/LO RANGES

The energy usage is validated against the High-2 Consumption Range first. If validation fails the High-1 Consumption Range test will be skipped. Similarly, if usage fails Low-2 Consumption Range validation, the Low-1 Consumption Range test will be skipped.

- If energy usage > Energy High-2 Consumption Range - Fatal error condition
- If energy usage > Energy High-1 Consumption Range - Warning error condition
- If energy usage < Energy Low-2 Consumption Range - Warning error condition
- If energy usage < Energy Low-1 Consumption Range - Warning error condition
- If energy usage = 0 - Warning error condition

Examples of cause for **fatal** error include:

- Miss-read meter
- Abnormal usage for current period - out of acceptable range
- Non-register meter

If energy consumption fails high-2 it is considered "**fatal**" error. The system will **not** attempt to use the usage to calculate charges. A fatal work queue item will be created for investigation.
If the consumption fails high-1 or low-1 or low-2 it is considered "warning". The system will use the usage to calculate charges but the account will be sent to the work queue for review.

Example:

Energy Usage for the Charge Period = 1190 kWh
Number of Days in the Charge Period = 31
Annual Consumption for the site = 8500 kWh
Estimate Factor = 8% of annual consumption
High-1 Consumption Factor = 200%
High-2 Consumption Factor = 400%
Low-1 Consumption Factor = 25%
Low-2 Consumption Factor = 10%
Added Usage = 25 kWh

Estimated Charge Period Energy Usage = 8500*0.08/30*31 = 703 kWh
High-1 Consumption Range = (703+25)*200% = 1456 kWh
High-2 Consumption Range = (703+25)*400% = 2912 kWh
Low-1 Consumption Range = (703+25)*25% = 182 kWh
Low-2 Consumption Range = (703+25)*10% = 73 kWh
Energy Usage of 1190 kWh **passes** the energy usage validation because it is less than High-1 Consumption Range and High-2 Consumption Range and greater than Low-1 Consumption Range and Low-2 Consumption Range.

A2 ATCO Gas

A2.1 Estimation Methodology

ATCO-CIS ESTIMATING FACTORS
Heat Sensitive Estimate Factor

If the site usage is heat sensitive, the following components are used in the calculation of the estimating factor:

Degree Days
Base Load Percentage (currently set at 74%)
Heat Load Percentage (currently set at 26%)

The calculation of the Heat Sensitive Estimating Factor for 30-day charge period is

((Degree Days in Period / Degree Days for previous year) * Heat Load)) + ((% Of Base Load / 365) * Number of Days in Period))

ATCO CIS calculates the estimate factor at cycle billing time. The estimate factor is based on 30-day billing period.

Non-Heat Sensitive Estimate Factor

If the site usage is non-heat sensitive, ATCO Gas determines the estimate factors. Each day the estimating factor is entered into ATCO-CIS to be used for cycle billing. The estimate factors are based on 30-day charge period.

ESTIMATED ENERGY CALCULATION

In ATCO-CIS, energy consumption is estimated when actual meter reading is not available for usage calculation. The estimated consumption is calculated as:

Estimating Factor = See formula above for heat sensitive and non-heat sensitive services

Raw Estimate (30 days) = Annual Consumption * Estimating Factor for Usage Period

Raw Estimate (actual days) = Raw Estimate (30 days)/30 * Number of Days in Charge Period

Net Reading Conversion = Raw Estimate / Billing Constant

Estimated Consumption = Reading Conversion * Billing Constant

Example of Estimating Consumption

Days in Charge Period	29 days
Annual Consumption:	150 GJ
Estimating Factor	.171
Billing Constant	1.05462
Raw Estimate (30 days)	150 * .171 = 25.65 GJ
Raw Estimate (actual days)	25.65 / 30 * 29 = 24.80 GJ
Net Reading Estimate	24.80/1.05462 = 23.51
Estimated Consumption	24 * 1.05462 = 25 GJ

Annual Consumption

ATCO CIS has the capability to keep two sets of Annual consumption. One is the Manually Entered Annual Consumption and the other is the System Calculated Annual Consumption. Annual consumption is used in estimating usage when an actual meter reading is not available. Annual consumption data stays with the service site. Therefore, customers moving from one location to another will inherit the annual consumption of the new site.

Manually Entered Annual Consumption

Generally, Manually Entered Annual Consumption can be entered into ATCO CIS and override the System Calculated Annual Consumption for a period of time. During that time, ATCO CIS will use the Manually Entered Annual Consumption for usage estimation. At the same time, ATCO CIS will continue to update the System Calculated Annual Consumption. The following examples are situations when Manually Entered Annual Consumption is used:

- New site without enough history to calculate annual consumption
- The consumption pattern of the site changed and the current System Calculated Annual Consumption based on past history no longer represents the current usage pattern

In most case, the manually entered annual consumption will be in effect for 180 days and then the system will switch to using system calculated annual consumption.

System Calculated Annual Consumption

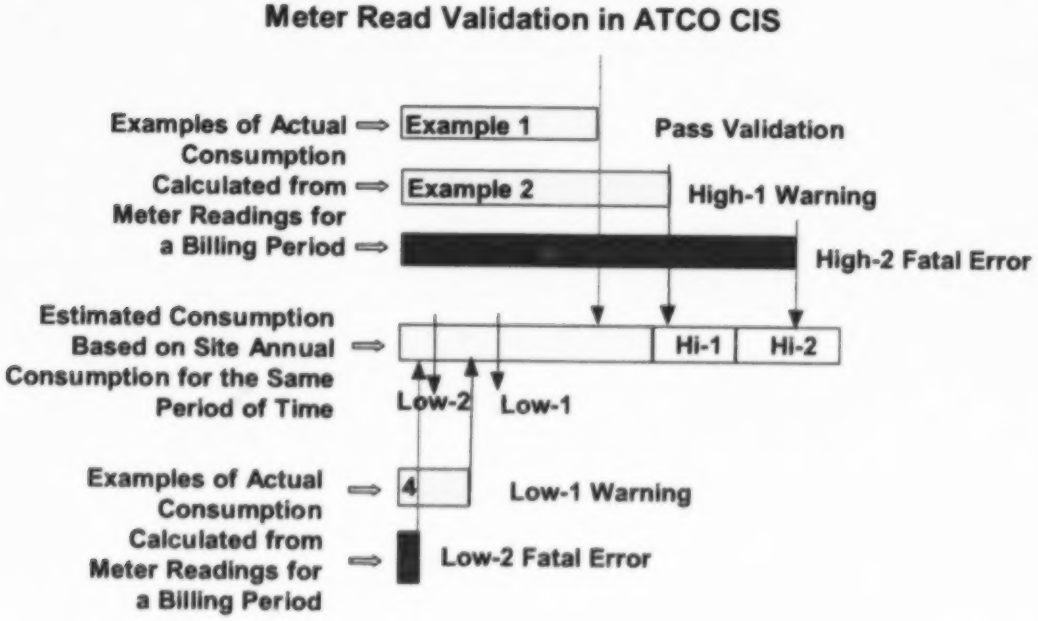
ATCO CIS updates the System Calculated Annual Consumption for a site whenever an actual usage is used for charge calculation. The System Calculated Annual Consumption is a rolling 12-month accumulated consumption for a site. ATCO CIS totals 12 months or up to 425 days of consumption or as much history available (if less than 12 months).

System Calculated Annual Consumption =
(Total consumption accumulated/Total number of days usage is accumulated) *365

A2.2 Meter Read Validation Thresholds

ATCO's philosophy behind the energy consumption high-low verification is to compare the actual measured consumption to an estimated consumption for the same time period based on the site consumption history. If the actual consumption is outside of the tolerance ranges ATCO CIS will either generate a warning or fatal error for the meter reading. A warning means that the

consumption requires review but will be used for billing. A fatal error means the consumption requires investigation and will **not** be used for billing.


Meter Read Validation in ATCO CIS
Examples of Actual Consumption Calculated from Meter Readings for a Billing Period
Example 1
Pass Validation
Example 2
High-1 Warning
High-2 Fatal Error
Estimated Consumption Based on Site Annual Consumption for the Same Period of Time
Hi-1
Hi-2
Low-2
Low-1
Examples of Actual Consumption Calculated from Meter Readings for a Billing Period
Low-1 Warning
Low-2 Fatal Error

Here are some definitions of terms:

- **Annual Consumption**: The 365 days of system calculated energy consumption for a site based on actual usage received from MDM. Manual estimated annual consumption can be determined if there is not enough consumption history available for the site

- **Estimation Factor**: The percentage of annual consumption that the charge period is estimated to consume

- **Number of Days in Charge Period**: The number of days between the last charge period end date to the current charge period end date.

- **Added Usage**: Base energy usage not affected by temperature and is provided by the client

VALIDATE METER READING

If the number of digits read is more than the number of dials on the meter, the meter reading is a miss-read meter reading. Reject the meter reading.

Meter readings are converted to energy usage using the foliowing formula:
Net Reading Measurement = Current Meter Reading – Previous Meter Reading used for billing
If Net Reading Measurement < 0 test for meter wrap around.

Meter Wrap-around Test

The Maximum Meter Capacity Range calculation for energy is based on the number of dials on the Meter Function and the Maximum Meter Capacity Factor. If the Meter Capacity Factor is set at 70% it means that the consumption for an average charge period should not exceed 70% of the capacity of the meter.

Max Registered Read for Meter =
(10**(number of dials) - 1) (i.e.,: 9999 for 4 dials or 99999 for 5 dials)

Adjusted Net Reading Measurement = Max Registered Read for Meter + Net Reading Measurement

Max Meter Capacity Range =
Max Registered Read for Meter * Billing Multiplier * Max Meter Capacity Factor / 30 days * Number of Days in Charge Period

Example:
Number of Dials = 3
Meter Capacity Factor = 70%
Installation Multiplier = 1
Number of Days in Charge Period = 31

Max Registered Read for Meter = 10**3 –1 = 999
Meter Capacity Range =
(999 * 1 * 0.7) / 30 * 31
= 999 * 0.7 * 1 / 30 * 31
= 723 mcf

If Adjusted Net Reading Measurement > Meter Capacity Range
The meter reading is a misread meter reading. Reject the meter reading.

If Adjusted Net Reading Measurement <= Meter Capacity Range
Set the Net Reading Measurement = Adjusted Net Reading Measurement
Proceed to calculate energy usage

CALCULATE ENERGY USAGE

Energy Usage = Net Reading Measurement * Conversion Factor (or Billing Multiplier)

ATCO Gas's Billing Multiplier converts gas volume measurement into energy usage.

Where:
GJ = Gigajoules
MJ = Megajoules
mcf = thousand cubic feet
m3 = cubic meter

Energy Usage (GJ) = Uncorrected Measured Gas Volume (mcf) * Billing Multiplier (GJ/mcf)

Billing Multiplier (GJ/mcf) = Installation Multiplier * Heat Value (GJ/mcf)

Heat Value is calculated in System Internal (SI) conversion, MJ/m3, and must be converted to GJ/mcf since Uncorrected Measured Gas Volume is in mcf.

Heat Value (GJ/mcf) = Heat Value (MJ/m3) * 0.0001 (GJ/MJ) * 28.174 m3/mcf

Installation Multiplier = Meter Multiplier * Pressure Correction Factor * Super-compressibility factor

Pressure Correction Factor = PF Factor * PFM Factor * Base Factor * Elevation Factor

PF Factor, PFM Factor, Base Factor and Elevation Factor are based on the metering pressure, atmospheric pressure, and elevation of the site where the meter is installed.

Example 1:

Previous Meter Reading used for billing = 380
Current Meter Reading = 385
Billing Multiplier = 1.09 GJ/mcf
Net Reading Measurement = 385-380 = 5 mcf
Energy Usage = 5 mcf * 1.09 GJ/mcf = 5.45 GJ

Example 2:

Previous Meter Reading used for billing = 329
Current Meter Reading = 327
Billing Multiplier = 1.09
Max Registered Read for Meter = 999
Meter Capacity Range @ 70% = 699
Net Reading Measurement = 327-329 = -2
Net Reading Measurement < 0 perform meter wrap-around test
Adjusted Net Reading Measurement = 999 + (-2) = 997
Adjusted Net Reading Measurement > 699
The meter reading is a misread meter reading. Reject the meter reading.

Example 3:

Previous Meter Reading used for billing = 899
Current Meter Reading = 10
Billing Multiplier = 1,09
Max Registered Read for Meter = 999
Meter Capacity Range = 699
Net Reading Measurement = 10-899 = -889
Net Reading Measurement < 0 perform meter wrap-around test
Adjusted Net Reading Measurement = 999 + (-889) = 110
Adjusted Net Reading Measurement < 699
Net Reading Measurement = 110
Energy Usage = 110 * 1.09 = 119.9 GJ

HI/LOW ENERGY USAGE VALIDATION

Estimated Usage Calculation

If the site usage is heat sensitive, the following components are used in the calculation of the estimating factor:

- Degree Days
- Base Load Percentage (currently set at 74%)
- Heat Load Percentage (currently set at 26%)

The Heat Sensitive Estimating Factor =
((Degree Days in Period / Degree Days for previous year) * Heat Load)) + ((% of Base Load / 365) * Number of Days in Period))

Estimated Charge Period Energy Usage =
Annual Consumption * Estimate Factor/ 30 days * Number of Days in Charge Period

Hi/Low Range Calculation

The HI/LO Range calculation for energy validation is based on Annual Consumption.
Energy usage is validated against the HI/LO ranges. The values of the validation factors can vary by season. The following are the energy usage validation factors:

- High-1 Consumption Factor used for calculating High-1 Consumption Range
- High-2 Consumption Factor used for calculating High-2 Consumption Range
- Low-1 Consumption Factor used for calculating Low-1 Consumption Range
- Low-2 Consumption Factor used for calculating low-2 Consumption Range

For example:

High-1 factor of 2.0 means a warning will be produced if the usage received from the distributor is higher than two (2) times estimated usage (based on annual consumption) for the billing period.

High-1 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x High-1 Consumption Factor

High-1 Consumption Range is the lowest of the calculated **High-1 Consumption Range and** the **Annual Consumption**

High-2 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x High-2 Consumption Factor

High-2 Consumption Range is the lowest of the calculated **High-2 Consumption Range and** the **Annual Consumption**

Low-1 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x Low-1 Consumption Factor

Low-2 Consumption Range =
(Estimated Charge Period Energy Usage + Added Usage) x Low-2 Consumption Factor

VALIDATE ENERGY USAGE USING HI/LO RANGES

The energy usage is validated against the High-2 Consumption Range first. If validation fails the High-1 Consumption Range test will be skipped. Similarly, if usage fails Low-2 Consumption Range validation, the Low-1 Consumption Range test will be skipped.

- If energy usage > Energy High-2 Consumption Range - Fatal error condition
- If energy usage > Energy High-1 Consumption Range - Warning error condition
- If energy usage < Energy Low-2 Consumption Range - Warning error condition
- If energy usage < Energy Low-1 Consumption Range - Warning error condition
- If energy usage = 0 - Warning error condition

Examples of cause for **fatal** error include:

- Miss-read meter
- Abnormal usage for current period - out of acceptable range
- Non-register meter

If energy consumption fails high-2 it is considered "**fatal**" error. The system will **not** attempt to use the usage to calculate charges. A fatal work queue item will be created for investigation.
If the consumption fails high-1 or low-1 or low-2 it is considered "warning". The system will use the usage to calculate charges but the account will be sent to the work queue for review.

Example:

Energy Usage for the Charge Period = 119.9 GJ
Number of Days in the Charge Period = 31
Annual Consumption for the site = 850 GJ
Estimate Factor = 8% of annual consumption
High-1 Consumption Factor = 200%
High-2 Consumption Factor = 400%
Low-1 Consumption Factor = 25%
Low-2 Consumption Factor = 10%
Added Usage = 5 GJ

Estimated Charge Period Energy Usage = 850*0.08/30*31 = 70 GJ
High-1 Consumption Range = (70+5)*200% = 150 GJ
High-2 Consumption Range = (70+5)*400% = 300 GJ
Low-1 Consumption Range = (70+5)*25% = 18.75 GJ
Low-2 Consumption Range = (70+5)*10% = 8 GJ
Energy Usage of 119.9 GJ **passes** the energy usage validation because it is less than High-1 Consumption Range and High-2 Consumption Range and greater than Low-1 Consumption Range and Low-2 Consumption Range.

A3 ENMAX Power

A3.1 Estimation Methodology

A3.1.1 Cumulative Meter Estimation

a) Broken Meter

1. Calculate the Average Daily Usage (ADU):
   a) Calculate the ADUs from the previous 12 months' reads if available. If not use step b.
   b) Calculate the ADUs from the most recent 3 months' reads, if available. If not, use step c
   c) Calculate the ADUs from 2 or 1 periods, whichever is available
   d) Calculate 80% of the average ADU
2. Calculate the number of days of use:
   a) Investigate the date as to when the meter was removed.
   b) Calculate the number of days from the last actual read date to the removal date.
3. Multiply the number of days of use by the estimated ADUs. This value determines the estimated consumption.
4. Divide the value in Step 3 by the (meter + billing multiplier) and add the value to the previous dial read to calculate the estimated dial read.

Example:

Read Date/Time	Days Diff	ADU	Read Type Code	Dial Read KWH	Consumption	Multiplier
2004-07-19 05:00:00	34.84	43.63	FINAL	395	1520	80
2004-06-15 08:50:47	33.00	48.48	ACTUAL	376	1600	80
2004-05-14 08:45:17	29.97	50.72	ACTUAL	356	1520	80
2004-04-15 09:34:37	31.91	47.63	ACTUAL	337	1520	80
2004-03-15 11:43:04	32.06	69.87	ACTUAL	318	2240	80
2004-02-13 10:18:27	29.01	68.95	ACTUAL	290	2000	80
2004-01-16 10:10:45	36.01	66.65	ACTUAL	265	2400	80
2003-12-12 09:54:48	25.00	57.60	ACTUAL	235	1440	80
2003-11-18 09:53:59	29.02	63.39	ACTUAL	217	1840	80
2003-10-21 09:18:08	34.01	51.75	ACTUAL	194	1760	80
2003-09-18 09:02:19	29.01	41.36	ACTUAL	172	1200	80
2003-08-21 08:46:21	35.03	47.96	ACTUAL	157	1680	80

Read Date/Time	Days Diff	ADU	Read Type Code	Dial Read KWH	Consumption	Multiplier
2003-07-18 08:06:58	30.91	44.00	ACTUAL	136	1360	80

Average ADU = 54.8645034554.8645 x 80% = 43.89
43.89 x 34 days (June 15 to July 19) = 1492 kWh
1492 / 80 multiplier + 376 last dial read on June 15 = 395 kWh July 19/2004 estimated final reading

b) Billing Estimation

Historical Meter Reads Exist:

Estimating Factor = 60%

Number of Days in Prior Consumption Period = Meter Read End Date –Meter Read Start Date

Number of Days in Estimation Period = Estimation Read End Date – Estimation Read Start Date

Average Daily Usage = (Total consumption accumulated/ Number of Days in Consumption Period)

Estimated Consumption = Average Daily Usage * Number of Days in Estimation Period

1. Calculate the consumption periods.

    a) Calculate the total number of days in the estimated consumption period.
    b) Calculate the total number of days in the prior consumption period.

2. Calculate the minimum requirement for the representation of the estimated consumption period. This is determined as the number of days in the estimated consumption period multiplied by the estimating factor.

3. If the previous period satisfies the minimum requirement for representation of the estimated consumption period, then the Average Daily Usage is total consumption in the previous period divided by the number of days in the previous period. If the minimum requirement is not satisfied, then the next prior consumption periods are taken until the minimum requirement is achieved. The total Average Daily Usage is the summation of total consumption accumulated divided by the number of days from the latest consumption period's end date and the earliest consumption period's start date of all prior consumption periods needed to satisfy the minimum requirement for representation of the estimated consumption period.

4. The Average Daily Usage is multiplied to the number of days in the estimated consumption period to derive at the estimated consumption.

Historical Meter Reads Do not Exist:
Site is estimated at a seed value based on rate codes. These seed values will be disclosed on the EPC website.

c) Demand Estimation – Broken Meters

Demand is currently estimated at 80% of the demand over the previous 12 months.

d) Demand Estimation – Billing

We are assessing whether we will estimate demand at 0 or in a similar fashion to our broken meter estimation (recognizing that a change may have to be made to the usage validation to allow estimated 0 demand not the be validated against kWh)

A3.1.2 Interval Meter Estimation

For estimating Interval meter data ENMAX Power follows the rules set out in the AESO SSC Version 9.6.

A3.2 Meter Read Validation Thresholds

A3.2.1 Cumulative MDM

a) Handheld Validation

ENMAX Power uses the ITRON G5 Handheld as the first line of meter read validation. When a meter is read by the Meter Reader the dial read is entered into the handheld and consumption is validated by the handheld software. The validation works as follows:

- MDM software provides the handheld with an estimated value called the Estimated Consumption (EC). The EC represents the approximate consumption value of the anticipated meter read. The EC is then used in a formula to identify reads that would be considered high or low. Reads that are considered high or low prompt the Meter Reader to re-examine the meter and re-enter reads.
- The EC is calculated by determining the site's last read period that was greater than five days in length. The consumption value for that period and the number of days in the current period is then determined. That consumption value is divided by the number of days to calculate Average Daily Use (ADU).
- The next step in the EC calculation is the determination of the number of days in the current read period. This is calculated by recording the number of days between the last read date and expected read date; set to the creation date of the download, ERI file, plus two days.
- If there is no period greater then five days to create the EC, then a Profile Average Daily Usage is used instead in the calculation. Load Research sites update the Average Daily Use values for residential, small commercial and medium commercial sites (large commercial sites are not calculated because they are all read using MV-90).
- If there is no period greater than five days and no Profile ADU, then the estimated consumption is set to one. This circumstance will force the meter reader to re-enter the meter number and read on the site.

ERI Estimated Consumption Calculation

D/(C-B) = ADU
(E-F)+2 = G
G*ADU=ERI Estimated Consumption
A = previous read period of site greater than five days. Not directly used in calculation
B = the start date of A
C = the end date of A
C-B = the number of days in A
D = consumption value of A
E = ERI file creation date
F = date of last meter read
G = total days for this period of which to base estimated consumption
2 = days added to total days used in calculation to reflect business process

ADU = average daily use
ERI Estimated Consumption = Value used in Meter Reader handheld to base validation rules on

Handheld Validation Rules

The ERI Estimated Consumption is implemented into the handheld validation system and calculated for every meter. ENMAX Power uses assorted Tolerance Parameters based on meter type, but they generally are 70% and 20%. The way the handheld validates with these tolerances is by taking the ERI EC (as calculated in the above formula) and multiplies it by 70% (.7) and then adds the resulting amount to the EC for the High 1 tolerance. The High 1 tolerance is then multiplied by 20% (.2), and the result is added to the High 1 value to create the High 2. This creates two High thresholds. The low thresholds are calculated by multiplying the ERI EC by 0.7 for the Low 1 tolerance and then by 0.2 to create the Low 2 tolerance.

Example:

The following example details how this works, and the results:

EC = 100
High 1 = (100 * 0.7) + 100 = 170
High 2 = (170 * 0.2) + 170 = 204
Low 1 = 100 - (100 * 0.7) = 30
Low 2 = 30 - (30 * 0.2) = 24
Consumption Chart

0 L2 **24** L1 **30** Good **100** Good **170** H1 **204** H2

Any reads that fall between 30-consumption and 170-consumption pass validation (no prompt to Meter Reader). Reads that are between 170 and 204 fail High 1 and the meter reader will be prompted to re-read the meter. Reads that are greater than 204 fail High 2 and the meter reader is prompted to enter the meter number and re-read the meter. Conversely, if the consumption value is between 24 to 30 the read will fail Low 1 and the Meter Reader will have to re-read the meter. If the consumption value is less than 24 there will be a Low 2 failure and the meter reader will be prompted to re-read the meter.

b) Automated MDM Validation

ENMAX POWER has developed a system called **V**alidation & **E**diting **(VE).** VE tests every cumulative meter read before it is posted to the database. VE uses validation standards to develop expected ranges for each meter read.

VE has 4 meter read sources:

- The Electronic Read Output **(ERO)** file is a list of scheduled cycle reads taken by meter readers.
- **Online** reads are reads entered in **Everest** by various data entry personnel.
- **Recalc** reads are reads that have been posted to the database but are re-sent for the purpose of correcting a site's history.
- **MIM** reads are life cycle reads captured when a service order is closed.

VE has 2 possible outcomes:

- The read is **validated** and posted to the database,
- Or the read is **suspended** and it is sent to MDM Validation Team for analysis.

c) MDM Validation Team Validation

The MDM Validation Team acts as the final checkpoint. MDM validation team evaluates all reads suspended identified by VE and determine whether or not the read should be posted to the database.

If a read fails our system, a MDM rep will look at the read and determine whether the read is good or not. If the read is high, the MDM rep will see if the read is within the 3 times the ADU. If it is, the read is considered to be a good read.

If a read is 0 for three months, the MDM rep. would issue a Service Order to verify what is happening at the site.

Load factors should not exceed 1. If it does for two months in a row, the MDM rep would send a Service Order to the Meter Shop.

There are also patterns that an MDM rep would look for when a reading has been kicked out of the system. Such patterns include; vacancies, meter exchanges and seasonal services.

The following is a list of errors that an MDM Rep. may encounter in the day to day validation process.

Error Text Message	**Parameters based on Previous ADU to Current ADU**
Error #403010 – Zero consumption Active meter	
Error #404010 Consumption on De-energized site	
Error #409010 - Failed Low Limit KWh	Current ADU is < 20 % of historical ADU
Error #409020 - Failed High Limit KWh	Current ADU is > 300 % of historical ADU
Error #500010 – Load Factor not validated	Load Factor is > 1.0
Error #500020 - Load Factor variance exceeds parameter	Load Factor is +/- 20 % of historical Load Factor
Error #500030 - Failed Demand Low Limit	Current Demand Read is < 20 % of historical demand Read
Error #500040 - Failed Demand High Limit	Current Demand Read is > 300 % of historical demand Read

The MDM validation team is able to decide the read is reasonable and release it, or request a check read, wait for the next cycle read to determine if it is reasonable.

Example:

ERR403010 – Zero consumption Active meter

Read Date/Time	Read Type Code	Dial Read KWH	Consumption
2004-09-08 18:48:20	ACTUAL	66461	0
2004-08-05 08:56:51	ACTUAL	66461	0
2004-07-07 08:57:04	ACTUAL	66461	0
2004-06-04 08:55:32	ACTUAL	66461	9
2004-05-05 08:48:56	ACTUAL	66452	3

ERR404010 – Consumption on De-energized site

Read Date/Time	Read Type Code	Dial Read KWH	Consumption
2004-09-09 08:30:44	ACTUAL	15380	1

Read Date/Time	Read Type Code	Dial Read KWH	Consumption
2004-09-07 05:00:00	OFFCYC	15379	331
2004-08-25 13:20:22	ACTUAL	15048	723

*** site was de-energized, the current reading is assigned this error message.**

ERR409010 – Failed Low Limit kWh

Read Date/Time	ADU	Read Type Code	Dial Read KWH
2004-09-09 08:37:41	0.00	OFFCYC	92874
2004-08-30 10:40:59	0.00	ACTUAL	92874
2004-08-23 05:00:00	1.49	OFFCYC	92874
2004-07-28 08:55:50	5.71	ACTUAL	92834
2004-06-28 08:57:18	5.18	ACTUAL	92657
2004-05-27 08:52:02	6.20	ACTUAL	92486
2004-04-28 09:06:48	7.84	ACTUAL	92300
2004-03-30 10:10:26	6.77	ACTUAL	92065
2004-02-26 11:20:39	8.75	ACTUAL	91835
2004-01-29 10:42:24	10.86	ACTUAL	91581
2003-12-30 11:54:15	7.80	ACTUAL	91245
2003-11-27 12:35:10	7.04	ACTUAL	90980
2003-10-03 00:00:00	6.60	ACTUAL	90582

*** current reading is below 20% of historical ADU**

ERR409020 – Failed High Limit kWh

Read Date/Time	ADU	Read Type Code	Dial Read KWH
2004-09-09 11:38:53	0.18	OFFCYC	84387
2004-08-24 09:37:50	0.04	ACTUAL	84384
2004-07-29 06:14:54	0.05	ACTUAL	84383

*** current reading is above 300% of historical ADU**

ERR500010 – Load Factor not validated

Read Date/Time	ADU	Load Factor	Read Type Code	Dial Read KWH	Dial Read KVA	Consumption	Max Demand KVA
2004-09-03 09:33:00	605.58	1.05	ACTUAL	7105	0.4	18180	24
2004-08-05 09:03:14	626.01	0.81	ACTUAL	6802	0.54	18720	32.4
2004-07-07 11:21:53	604.72	0.78	ACTUAL	6490	0.54	21180	32.4
2004-06-03 10:46:29	558.96	0.75	ACTUAL	6137	0.52	16740	31.2

*** Load factor is greater than 1.0 but is a valid reading**

ERR500020 – Load Factor variance exceeds parameters

Read Date/Time	ADU	Load Factor	Read Type Code	Dial Read KWH	Dial Read KVA
2004-09-07 09:04:14	202.32	0.13	ACTUAL	5138	0.4
2004-07-06 07:42:23	402.40	0.25	ACTUAL	5057	0.42
2004-06-04 07:40:04	495.53	0.31	ACTUAL	4974	0.42
2004-05-05 07:43:57	428.84	0.27	ACTUAL	4878	0.42
2004-04-02 08:52:30	505.89	0.30	ACTUAL	4787	0.44
2004-03-03 08:59:26	479.88	0.28	ACTUAL	4689	0.44
2004-02-05 08:49:08	533.41	0.32	ACTUAL	4605	0.44

Read Date/Time	ADU	Load Factor	Read Type Code	Dial Read KWH	Dial Read KVA
2004-01-07 08:55:28	397.76	0.25	ACTUAL	4505	0.42
2003-12-04 09:01:32	535.03	0.33	ACTUAL	4418	0.42
2003-11-06 08:50:30	506.33	0.30	ACTUAL	4321	0.44
2003-10-08 08:21:23	500.56	0.31	ACTUAL	4226	0.42

*** current reading is in this case – 20% of the historical Load Factor**

ERR500030 – Failed Demand Low Limit

Read Date/Time	Load Factor	Read Type Code	Dial Read KWH	Dial Read KVA	Max Demand KVA	Consumption	Max Demand KVA	Multiplier
2004-09-03 13:03:01	0.23	ACTUAL	317	0.28	0.28	48	0.28	1
2004-08-04 13:49:35	0.21	ACTUAL	269	0.28	0.28	43	0.28	1
2004-07-06 13:54:26	0.22	ACTUAL	226	0.28	0.28	52	0.28	1
2004-06-02 13:12:25	0.24	ACTUAL	174	0.28	0.28	49	0.28	1
2004-05-03 13:12:00	0.24	ACTUAL	125	0.28	0.28	52	0.28	1
2004-04-02 14:03:24	0.24	ACTUAL	73	0.3	0.3	53	0.3	1
2004-03-03 14:43:34	0.24	ACTUAL	20	0.28	0.28	16	0.28	1
2004-02-23 12:01:00		INIT	4	0	0	0	0	1
2004-02-23 12:00:00	0.22	FINAL	3717	0.32	6.4	680	6.4	20
2004-02-04 14:42:38	0.23	ACTUAL	3683	0.32	6.4	1060	6.4	20
2004-01-06 15:20:54	0.25	ACTUAL	3630	0.3	6	1240	6	20
2003-12-04 14:16:38	0.24	ACTUAL	3568	0.3	6	1020	6	20
2003-11-06 15:04:59	0.23	ACTUAL	3517	0.32	6.4	1080	6.4	20
2003-10-07 12:26:13	0.23	ACTUAL	3463	0.3	6	1000	6	20

*** current demand reading is < 20% of the historical demand reading**

ERR500040 – Failed Demand High Limit

Read Date/Time	ADU	Load Factor	Read Type Code	Dial Read KWH	Dial Read KVA
2004-09-08 19:02:33	105.33	0.09	ACTUAL	318	0.405
2004-08-05 11:25:35	92.89	0.27	ACTUAL	287	0.121

*** current demand reading is > 300% of the historical demand reading**

A3.2.2 Interval MDM

For Interval meter data ENMAX Power follows the rules set out in the AESO System Settlement Code Version 9.6

A3.2.3 Billing Validation

Billing validation is performed both as a prebilling process and a post-billing process. Input data to billing is validated mostly as a "safety net" prior to running billing, if problems are found they are resolved prior to the run if possible.

Post-billing, validates the billing results as dollars and overall charges. Problems that are found in this area will hold the sites from upcoming billing runs until the problem is resolved.

A4 EPCOR Distribution Inc.

A4.1 Estimation Methodology

EPCOR Distribution Inc. will have full alignment between Settlement and Tariff. EDI will use initial settlement data to establish the estimate of a period and will replace it when an actual becomes available.

Process:

a) **Calculate Profile Values**

The creation of the NSL profile to be used in the allocation calculation of each site on a segmented basis. The NSL is also used to calculate estimate factors that are used by the estimation process.

Validation:

- All meter read validation would be completed in MDM.
- All pod consumption validation would be completed in MDM

Calculation:

$$NSL_{h} = \sum POD_{h} - \sum DIM_{h} - \sum DEEMED_{h} - \sum Known\_Losses_{h}$$

This task will be performed once a day prior to the profile approval and after the calculation of interval allocation

b) **Approve NSL Shape**

The NSLS shape will be approved by an operational group. The values will be sent to the users and they will use the POD and DIM values to validate the NSL value, when the shape is correct, the profile will be approved.

The NSL values must form a shape that is similar to shapes that have been recorded in the past. Also the shape must be inline with the POD consumption data.

Business Rules:

- NSL values must not be greater then the POD values
- NSL values should be within an historical high/low boundary that is set by an operational group

This task will be performed once a day prior to the allocation of correction cumulative reads and after the calculation of profile values.

c) **Allocate Cumulative Correction**

When a meter read is received that exactly overlaps a current actual meter read, a new meter read must be allocated in place of the old meter read. With this correction process, the old meter read is moved into the allocation history data store where the main allocation table only contains current allocated data for the sites.

Validation:

- All meter read validation would be completed in MDM.
- Ensure the cancellation exactly overlap the current consumption record and allocation record.

Business Rule:

- Cancel meter read must exactly overlap the current cumulative consumption meter read

This unit task will be called once a day prior to the allocation of actual cumulative meter reads and after the approval of the NSL profile values

d) Estimate Factor Calculation

Based on the actual cumulative meter reads that are received into the system, an estimate factor is created so that energy can be allocated for sites that do not have a meter read.

Validation:

- All meter read validation would be completed in MDM.

Calculation:

$$Estimated\_Usage = \frac{MR_{ab}}{\sum_{a}^{b} NSLS}$$

This task will be performed once a day prior to the allocation of cumulative meter reads and after the allocation of cumulative correction meter.

Notes:

- Estimated_Usage = Estimating_Factor
- MR: Meter Read (for period a-b)
- NSLS: Net System Load Shape

[Note: EPCOR Distribution is currently reviewing this estimation methodology and it may change for April 1, 2005. EPCOR Distribution Inc. will submit the change to this estimation methodology as soon as it is available.]

e) Allocate Cumulative Estimate

To satisfy AESO requirements of an Initial settlement, this process will use a last actual allocation percentage to be applied against the profile to provide an estimate for energized sites. De-energized sites' estimates will allocate 0. Once an actual meter read is received this will be considered this sites allocated energy for the time segments required.

Validation:

- All estimate factor validation is done when the meter read that builds the estimate factor is validated in the MDM system.

Calculation:

$$EstkWh_h = Estimate\_Factor(NSL_h)$$

This unit task will be called once a day prior to the creation of settlement reports and after the allocation of cumulative meter reads.

f) Tariff Bill Calculation

When the Tariff Bill is calculated the daily estimates will be aggregated to form the required periods.

A4.2 Meter Read Validation Thresholds

As stated above the validation is performed when the meter read that builds the estimate factor is validated in the MDM system.

A4.2.1 Itron (Handheld) Validations

The first line of validation of meter reads exists at the point in the meter data collection process where the operator enters the meter read manually into the Itron handheld device. The validation values are calculated currently by UIS and in the future by the MDM software and then and then loaded into the

handheld (via MV-RS) for each individual site. These intervals are in place to ensure that accurate manual reads are occurring. The validation is based on high low values as described below:

- 2 sets of High/Low values are calculated.
- The system uses takes the previous meter read value and then adds the average consumption for the site to obtain an estimate for what the meter dials should read.
- The intervals are then created by applying percentages to the average consumption value and adding/subtracting these values to the dial read estimate. The percentages are fixed values for different levels of consumption and will be provided below.
- The high/low intervals are then transferred to the handheld for each site on the specific route.
- As the reader enters meter readings into the handheld each reading is checked against the 2 intervals before they are stored.
- If the reading falls outside of high/low interval 1 the operator is required to visually confirm the reading of the meter with that he/she entered into the system. If the reading is confirmed then the data is stored otherwise the operator may correct the entry if an error was made.
- If the reading falls outside of high/low interval 2 the operator is required to re-key the meter reading to ensure that it was entered correctly. This re-entered data is then stored in the system.
- Upon return to the meter office these reads are then uploaded to the system.

The calculations for these intervals are described below:

30 day average = estimate from Site Allocation

average consumption = (30 day average * (# of days in period / 30)) / multiplier

dial read estimate = previous dial read + average consumption

H1 = dial read estimate + (average consumption * H1%)
H2 = dial read estimate + (average consumption * H2%)
L1 = dial read estimate – (average consumption * L1%)
L2 = dial read estimate – (average consumption * L2%)

There are 3 sets of rate codes to which different high/low intervals are applied and these are described in the table below:

		Itron Reading Intervals											
		Residential Ranges				Small Commercial Ranges				Medium Commercial Ranges			
Consumption Range		Interval 1		Interval 2		Interval 1		Interval 2		Interval 1		Interval 2	
From	To	Low %	High %	Low %	High %	Low %	High %	Low %	High %	Low %	High %	Low %	High %
0.00	900.99	20%	300%	10%	350%	11%	300%	10%	400%	20%	300%	10%	350%
901.00	1800.99	25%	200%	20%	250%	11%	300%	10%	400%	25%	200%	20%	250%
1801.00	3000.99	50%	150%	25%	200%	11%	300%	10%	350%	50%	150%	25%	200%
3001.00	6200.99	55%	145%	30%	195%	11%	300%	10%	350%	55%	145%	30%	195%
6201.00	10000.99	60%	140%	35%	190%	11%	101%	10%	200%	60%	140%	35%	190%
10001.00	50000.99	65%	135%	40%	185%	11%	101%	10%	150%	65%	135%	40%	185%
50001.00	75000.99	70%	130%	45%	180%	11%	101%	10%	150%	70%	130%	45%	180%
75001.00	1000000.99	75%	125%	50%	175%	na	na	na	na	75%	125%	50%	175%
1000001.00	100000000.99	80%	120%	55%	170%	na	na	na	na	80%	120%	55%	170%

A4.2.2 System Level Validations

The current system level validation process consists of three sets of validation rules that each consumption value that results from a cumulative meter read must pass. Any values that fail one or more of these validation rules is rejected and results in the generation of an edit report. These edit reports are

then manually verified by operators who verify using a variety of different methods including historical examination, water use comparisons, sending for another read and a variety of other options. The three validation rules are summarized below:

A4.2.2.1 Consumption High & Low Percentage Values

The consumption high and low percentage values are applied to all cumulative meter consumption measures to create high and low levels that all consumption figures must pass to be validated. The high and low values are calculated as follows:

- The previous periods pro rated monthly consumption (based on 30 days) is used as the baseline
- High and low percentages are collected from the table based upon the previous periods pro rated monthly consumption
- The high and low percentages are then multiplied with the baseline to create a high low range
- The current periods pro rated monthly consumption is compared against the high low values and if it falls outside of the range and edit report is created

Mathematically the process is:
*High: Last Period Pro-Rated (30 day) Consumption*High(%)*
*Low: Last Period Pro-Rated (30 day) Consumption*Low(%)*

The high and low percentages sorted by rated code and consumption levels are provided below:

		System Consumption Intervals (IN USE)					
		Residential		Small Commercial		Medium Commercial	
Consumption Range		Interval 2		Interval 2		Interval 2	
From	To	Low %	High %	Low %	High %	Low %	High %
0.00	900.99	10%	350%	10%	400%	10%	350%
901.00	1800.99	20%	250%	10%	400%	20%	250%
1801.00	3000.99	25%	200%	10%	350%	25%	200%
3001.00	6200.99	30%	195%	10%	350%	30%	195%
6201.00	10000.99	35%	190%	10%	200%	35%	190%
10001.00	50000.99	40%	185%	10%	150%	40%	185%
50001.00	75000.99	45%	180%	10%	150%	45%	180%
75001.00	1000000.99	50%	175%	na	na	50%	175%
1000001.00	100000000.99	55%	170%	na	na	55%	170%

A4.2.2.2 Max Demand High & Low Percentage Values

Only some sites on cumulative metering are equipped with a demand meter in addition to the conventional consumption meter. These meters record the maximum demand for the period and are reset at every read to then record maximum demand until the next meter read. For those sites that record demand values maximum demand high and low percentages are applied to validate the readings.

The high and low values are calculated as follows:

- The previous periods maximum demand is used as the baseline
- The previous power demand variance is applied as a percentage to this value in both directions to create high and low values
- The new demand reading is compared with the high and low values and if it falls outside of the range and edit report is created

Mathematically the process is:
High Value = Previous Period Max Demand(1+Previous Power Demand Variance)*
Low Value = Previous Period Max Demand(1-Previous Power Demand Variance)*
The previous power demand variance values currently used are sorted by rate code in the table below:

	Demand Variance
Residential	1%
Small Commercial	20%
Medium Commercial	20%

The current system uses the demand variance value for calculating in both directions, however this may be incorrect and the new system will examine the possibility of splitting the variance into a high and low percentage similar to the method employed in Section A3.2.1.

A4.2.2.3 Consumption High & Low Fixed Values

The consumption high and low fixed values represent maximum and minimum levels of monthly consumption (based on 30 days) that each site must pass. Any consumption values that fall outside of these ranges are rejected and result in an edit report of the reading. There high low fixed ranges for each of the three cumulative meter rate codes and these values are summarized in the table below:

	System High & Low Values			
	Warning Limits		Reject Limits	
Rate Code	Low	High	Low	High
Residential	2	1500	1	1750
Small Commercial	20	30000	10	75000
Medium Commercial	20	100000	10	150000

One also notes that there are two categories for the high and low fixed values one being a warning level and the second being the reject levels. However, consumption values that fall outside of the warning limits result in the generation of an edit report therefore making the reject limits useless.

[Note: EPCOR Distribution is currently reviewing this validation methodology and it may change for April 1, 2005. EPCOR Distribution Inc. will submit changes to this validation methodology as soon as it is available.]

A5 FortisAlberta

A5.1 Estimation Methodology

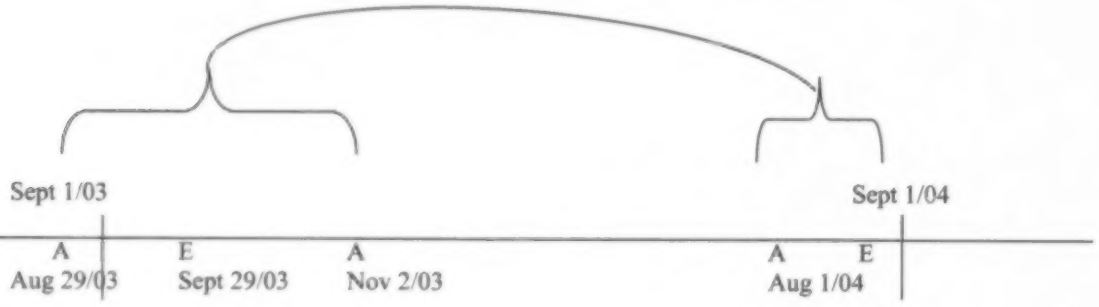
SAP Estimation Algorithm

There are 3 potential determinants used for the estimation calculation:

1) If FortisAlberta's Billing Engine has at least one actual read earlier than 365 days before the estimation date, the system calculates average daily usage (ADU) of the period between the closest actual read prior to that date and the closest actual read following that date. This ADU is then used to calculate the estimated usage in the current period based on the required number of days for the estimate.

2) If FortisAlberta's Billing Engine does not have sufficient history for the calculation in 1), but has at least two previous actual reads, the system calculates ADU based on the consumption between the last two actual reads closest to the estimate date.

3) If FortisAlberta's Billing Engine does not have at least two previous actual reads, the system calculates ADU based on seed values set by rate class.



Average Daily usage (ADU) calculated between August 29, 2003, and November 2, 2003, actual reads. ADU applied to August 1, read to calculate the September 1, 2004, estimate.

Sample Consumption Calculation - Prior Year

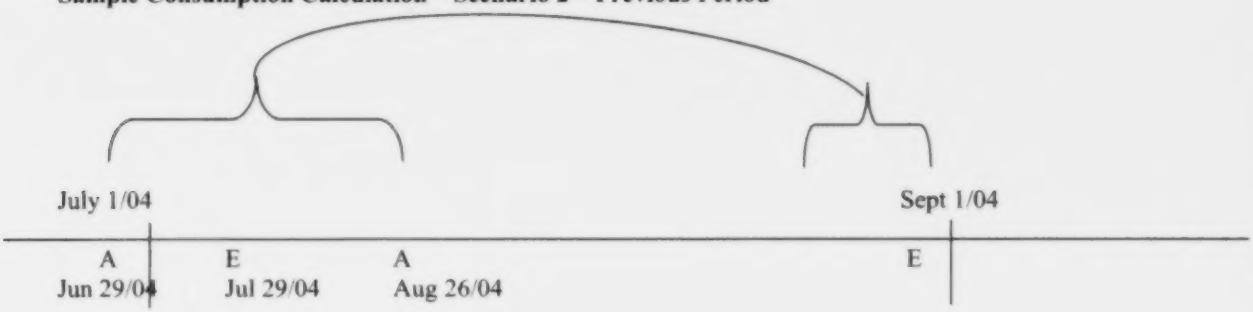
a) calculate days between last two actuals in the previous year
b) calculate difference in readings for consumption
c) divide consumption by number of days to find ADU
d) find numbers of days between last reading and current estimate date
e) apply ADU to number of days from last reading to determine consumption
f) adds consumption determined to last reading to determine correct dial reading

Read	Date	Dial
Current Estimate	09/01/04	?
Last read	08/01/04	34,654
Last read prior year after date required (actual)	11/02/03	29,788
Last read prior year before date required (actual)	08/29/03	29,168

a) 11/02/03 – 08/29/03 = 65 days
b) 29788 - 29168 = 620 kWh
c) 620 / 65 = 9.5384 ADU
d) 09/01/04 – 08/01/04 = 31 days
e) 9.5384 * 31 = 295.6904 kWh
f) 34654 + 295.6923 = **34,949**

Note - FortisAlberta's Billing Engine does not perform any rounding on calculations until the last step.

Sample Consumption Calculation – Scenario 2 – Previous Period

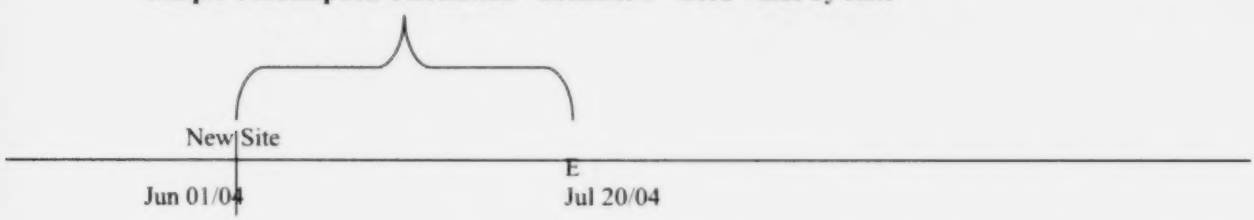


a) calculate days between last two actuals in the current year
b) calculate difference in readings for consumption
c) divide consumption by number of days to find ADU
d) find numbers of days between last reading and current estimate date
e) apply ADU to number of days from last reading to determine consumption
f) adds consumption determined to last reading to determine correct dial reading

Read	Date	Dial
Current Estimate	09/01/04	?
Last actual read	08/26/04	34,654
Last actual read	07/29/04	29,788

a) 08/26/04 – 07/29/04 = 28 days
b) 34654 - 29788 = 4866 kWh
c) 4866 / 28 = 173.7857 ADU
d) 09/01/04 – 08/26/04 = 6 days
e) 173.7857 * 6 = 1042.7142 kWh
f) 34654 + 1042.7142 = **35,697**

Sample Consumption Calculation – Scenario 3 – Seed Value by Rate



Rate Category	Period Consumption	Days
11	7,908 kWh	365
21,23,2411,2412,2421,2422,2441,2442	18,250 kWh	365
26	36,500 kWh	365
2901, 2902	85,166 kWh	365
41,43	24,333 kWh	365
45	60,833 kWh	365

Example Rate 11

Read	Date	Dial
Current Estimate	07/20/04	?
Last actual read	06/01/04	0

a) calculate days between last read and current estimate required
b) Divide period consumption by rate by 365 days for ADU
c) Apply ADU to number of days from last reading to determine consumption
d) adds consumption determined to last reading to determine correct dial reading

a) 07/20/04 – 06/01/04 = 49 days
b) 7908 / 365 = 21.66575
c) 21.66575 * 49 = 1061.62 kWh
d) 0 + 1061.62 = **1,062**

A5.2 Meter Read Validation Thresholds

A5.2.1 Field Validations (ITRON)

The expected read is determined from FortisAlberta's Billing Engine is based on the estimation algorithm explained above. There are High 1 / High 2 and Low 1 / Low 2 warnings in ITRON.

High 1: 50% above expected
Low 1: 25% below expected

High 2: 100% above expected
Low 2: 50% below expected

The reader is warned if the read is above or below limits. The reader has to re-enter the reading.

E.g. If previous read was 1000 and expected new read was 3000 (based on previous year, month or seed) the limits would be:

H2: 5000 = 1000 + (2000 * 2)
H1: 4000 = 1000 + (2000 * 1.5)
L1:2500 = 1000 + (2000 * .75)
L2:2000 = 1000 + (2000 * .5)

A5.2.2 FortisAlberta's Billing Engine Validations

Practices in place until we have approximately 16 months of history in FortisAlberta's Billing Engine:
We currently have a multi-step validation process post field (ITRON) validation:

a) FortisAlberta's Billing Engine initially sets tolerances as H2 and L2 values calculated above and releases those reads that pass this validation step.
b) Those sites which fail the H2 / L2 tolerances are then validated against expected rate class parameters and are released if they pass that validation step.
c) The sites that fail either validations 1) or 2) are reviewed manually and released or corrected as required.
d) Once billing is run for the site, dollar calculations are validated based on rate class expectations and are kicked out to an outsorting report for manual review and correction as required.
e) If the site cannot bill because there are problems with the site set-up, it is kicked out to a termination report for manual review and correction.

Planned practice for when we have approximately 16 months of history in FortisAlberta's Billing Engine:
The practices will be as above except that steps **a) and b)** will be discontinued and all sites that fail step 1 will be immediately kicked out and reviewed by the metering staff.

Appendix B Information Exchange Standards

B1 Purpose

Appendix B outlines the information exchange standards, both electronic and nonelectronic, for the tariff billing business transactions to enable market participants to exchange tariff billing data in a consistent and expedited manner. In addition to defining the format and content of each transaction, universal standards that govern all tariff billing transaction are specified.

The standards presented in the following sections are intended to be as specific as practical to facilitate data exchange between distributors and retailers. At the same time, the EUB recognizes that problems and issues may arise with individual market participants during system implementation and/or changes in market structure that would necessitate an adjustment to the standards. The EUB may consider revising these standards upon presentation of a documented need to do so by a market participant. The EUB may grant a market participant an exemption from these standards provided that the deviation from the standards are necessary and reasonable and the resulting effect on the operation of the market is minimal.

B2 Scope

The scope of this section of this code is limited to the tariff billing transactions listed in Table 4-1.

B3 Revisions

This code is subject to change by the EUB in consultation with appropriate market stakeholders. Market participants will be notified in advance of any revisions to the code. This communication will be followed by a versioned release of the code.

B4 Standards

This section of the code contains the standards that govern all tariff billing transactions. For consistency in the marketplace, this code will adopt the standards included in the Settlement System Code where appropriate.

B4.1 Directory Structure

Each market participant governed by this code must conform with the directory structure dictated by the standard transaction transport method used to send and receive electronic files and or transactions.

B4.2 File-Naming Conventions

B4.2.1 Files Transmitted Electronically

All transactions of the same type for a period (usually 1 day) are to be placed in a single CSV (Comma Separated Value) formatted file. The file name must be unique across all files produced by the market participant. The standard file naming convention is

TXN_Sender_Recipient_YYYYMMDDHHMISS.CSV

where,

TXN: three-letter abbreviation for the transaction name (e.g., Tariff Bill Accept = TBA) or file name (e.g., Tariff Bill File = TBF)

Sender:	ID of the sender (i.e., Distributor ID of the distributor responsible for the site(s) or Retailer ID)
Recipient:	ID of the recipient (i.e., Distributor ID of the distributor receiving the file or transaction or Retailer ID)
YYYYMMDD:	Date the file was created (e.g., 2004-12-02)
HHMISS:	Time the file was created on a 24-hour clock (e.g., 19:24:32)

B4.2.2 Files Available for Download

The standard file naming convention is

TXN_Sender_ YYYYMMDDHHMISS.CSV

where,

TXN:	three-letter abbreviation for the transaction name (e.g., Tariff Bill Accept = TBA) or file name (e.g., Tariff Bill File = TBF)
Sender:	ID of the sender (e.g., Distributor ID of the distributor responsible for the site(s) or Retailer ID)
YYYYMMDD:	Date the file was created (e.g., 2004-12-02)
HHMISS:	Time the file was created on a 24-hour clock (e.g., 19:24:32)

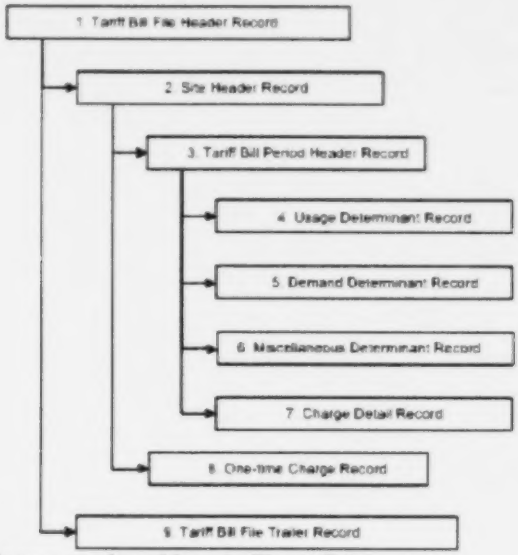
B4.3 CSV File Format

1) Data in each file must be presented in CSV format.
2) Commas (,) may only be used a field separators. No data field may be populated with a comma (,).
3) Each field in the file format is a placeholder; therefore if the field has a [null] or empty value, it must be represented as ',,' in the .csv output file.

B4.4 Tariff Bill File Record Production Sequence

The record production sequence of all data within each tariff bill file is provided in Figure B4-1.

Figure B4-1. Tariff Bill File Record Production Sequence


1. Tariff Bill File Header Record
2. Site Header Record
3. Tariff Bill Period Header Record
4. Usage Determinant Record
5. Demand Determinant Record
6. Miscellaneous Determinant Record
7. Charge Detail Record
8. One-time Charge Record
9. Tariff Bill File Trailer Record

Each step below corresponds to a numbered item in Figure B4-1.

1) The tariff bill file header record must be presented as the first record in a tariff bill file.
2) The tariff bill file header record must be followed by the presentation of a site header record.
3) Each site header record within the tariff bill file must be followed by the presentation of a tariff bill period record.[11] Within each site header, tariff bill periods must be presented in ascending date sequence. In the event that a tariff bill period is being cancelled and rebilled, the cancelled tariff bill period (and its associated child records) must be presented before the rebilled tariff bill period.
4) Usage determinant record(s) must be presented following the tariff period header record and in ascending date sequence.
5) If demand determinants are applicable for a specific tariff bill period, the applicable demand determinant record(s) must be presented following the usage records, when available, and in ascending date sequence.
6) If miscellaneous determinants are applicable for a specific tariff bill period, the applicable miscellaneous determinant record(s) must be presented following the usage and demand determinant records, when available, and in ascending date sequence.
7) If charges (excluding one-time charges) are applicable for a specific tariff bill period, the applicable charge(s) must be presented following the usage, demand, and miscellaneous determinant records, when available, and in ascending date sequence.
8) If one-time charges are applicable to a specific site, the applicable one-time charge(s) must be presented following the tariff bill period records, when available, and in ascending date sequence for that site. In the event where a one-time charge is being cancelled and rebilled, the cancelled one-time charge must be presented before the rebilled one-time charge for that site.
9) The tariff bill file trailer record must be presented as the last record in a tariff bill file.

B4.5 Optional Fields

The optional fields specified in all tariff billing transactions are applicable to the party generating the transaction.

[11] If only one-time charges are being presented for a site, the header record will only be followed by a one-time charge record.

B4.6 Data-type definition

The following sections describe the various data types used in the tariff billing transactions.

B4.6.1 Char(x)

Fixed length Character field that must be x characters in length.

For example, Char(3) is 'ABC'.

B4.6.2 Varchar(x)

Variable length Character field that can be a maximum of x characters in length.

For example, Varchar(3) is 'A','AB', or 'ABC'.

B4.6.3 Number(p,s)

Number field with p digits of precision and s digits of scale to the right of the decimal.

For example, 123456.78 is Number(8,2) and .0012 is Number(4,4).

A number (p,s) formatted field presented in a .csv file may present as many as (p +2) characters when the full number limit is reached for that field and the charge or charge period is being adjusted (i.e., contains a negative sign and a decimal place.)

B4.6.4 Date

Date field that requires a specified date in the following standard format:

YYYYMMDD

where,

YYYY:	year with century (e.g., 2004)
MM:	two-digit month (01 - 12)
DD:	two-digit day (01 - 31)

B4.6.5 Datetime

Datetime field that requires a specified date and time in the following standard format:

YYYYMMDDHHMISS

where,

YYYY:	year with century (e.g., 2004)
MM:	two-digit month (01 - 12)
DD:	two-digit day (01 - 31)
HH:	two-digit hour on a 24 hour clock (00 - 24)
MI:	two-digit minute (00 - 59)
SS:	two-digit second (00 - 59)

B4.6.6 Site ID Format

This is a thirteen digit field that must adhere, in the use of an electric distributor, to the Site ID format as defined in Schedule B of the SSC.

B4.7 Negative Numbers

When a numeric value is to be represented as a negative, the number must be shown with the minus sign '-' preceding the value.

For example, negative 123.45 must be shown as -123.45.

B5 Standard Codes

The standard codes defined in this section are limited to those transactions governed solely by this code. In the production of transactions governed by this code, market participants will also need to rely on standard codes governed by the SSC and other authorities, as well as distributors. For completeness, this section provides reference to these other authorities where appropriate.

B5.1 Record Type Code

This is a two-character code representing record type.

Table B5-1. Record Type Codes

Table Ref ID	Record Type Code	Record Type Name
1	FH	File header record
2	SH	Site header record
3	TH	Tariff bill period header record
4	DU	Determinant - measured usage record
5	DD	Determinant - demand record
6	DM	Determinant - miscellaneous record
7	CH	Tariff charge record
8	OC	One-time charge record
9	FT	File trailer record

B5.2 Retailer ID

This is a unique nine-digit value identifying the retailer. In the case of an electric retailer, this is equivalent to the Retailer ID of the retailer of record for the physical site as defined in Schedule B of the SSC.

B5.3 Distributor ID

This is a unique four-digit value identifying the distributor. In the case of an electric distributor, this is equivalent to the Wire Services Provider ID responsible for the physical site as defined in Schedule B of the SSC.

B5.4 Commodity Code

This is a two-character code representing commodity.

Table B5-2. Commodity Codes

Table Ref ID	Commodity Code	Commodity Name
1	EL	Electricity
2	NG	Natural Gas

B5.5 Zone ID

This is a unique fou.-digit value identifying the Zone ID. In the case of an electric distributor, this is equivalent to the Wire Services Provider ID representing a Settlement Zone within Alberta as defined in Schedule B of the SSC.

B5.6 Municipality ID

The EUB will maintain a list of Municipality IDs via a Municipality ID File (MID) and publish this on the EUB's Web site to fulfill the requirements of the Municipality ID field of the tariff bill file. The contents of the Municipality ID File are shown in Table B5-3.

Table B5-3. Municipality ID File (MID) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Municipality Code	Varchar(4)	MANDATORY FIELD – Unique identifier representing a municipality in Alberta as reported by Alberta Municipal Affairs.
2	Municipality Name	Varchar(100)	MANDATORY FIELD – Description of a municipality in Alberta as reported by Alberta Municipal Affairs.
3	Active Indicator Flag	Char(1)	MANDATORY FIELD – Y/N value indicating an active municipality ID. Y=Yes; N=No.

For each distributor, a single current version of the Municipality ID File (MID) will be published on the EUB Web site at any given time.

B5.7 REA Code

This is a four-character code representing an REA.

Table B5-4. REA Codes

Table Ref ID	REA Code	REA Name
1	1001	BATTLE RIVER
2	1002	ROCKY
3	1003	SOUTH ALTA
4	1004	WILD ROSE
5	1005	SION
6	2301	BRUDERHEIM
7	2403	WEST LIBERTY
8	2404	WEST WETASKIWIN
9	2413	MONTANA
10	2414	ERMINESKIN
11	3003	ARMENA
12	3004	KINGMAN
13	3101	HAYTER NE
14	3102	PROVOST
15	3104	SOUTH HAYTER
16	3702	STONY PLAIN
17	3901	VNM
18	4302	RYLEY
19	4305	KINGMAN GRAIN DRYER

Table Ref ID	REA Code	REA Name
20	4502	MAYERTHORPE & DISTRICT
21	4602	TOMAHAWK
22	4603	DRAYTON VALLEY
23	4604	LINDALE
24	4805	WILDWOOD
25	4903	CHIPMAN
26	5000	T-RURAL
27	5206	PEIGAN INDIAN
28	8101	NITON
29	9630	MIGHTY PEACE REAL – Zone 1
30	9640	HEART RIVER REAL
31	9650	MACKENZIE REAL
32	9654	MANNING REAL
33	9660	PEACE GROVE WORSLEY REAL
34	9678	VALLEYVIEW REAL
35	9705	LAKELAND REA ZONE 1
36	9710	BORRADAILE REAL
37	9711	BRAES REAL
38	9715	CADRON HIGHWAY REAL
39	9718	CLAYSMORE REAL
40	9722	LAKELAND REA ZONE 2
41	9723	DEVONIA REAL
42	9728	ELK POINT REAL
43	9733	GREENLAWN REAL
44	9737	LAKELAND REA ZONE 3
45	9746	LAKELAND REA ZONE 4
46	9752	LAKELAND REA ZONE 5
47	9757	MYRNAM REAL
48	9768	PENO REAL
49	9769	PLAIN LAKE REAL
50	9781	STRY REAL
51	9789	VEGREVILLE WEST REAL
52	9792	WARWICK REAL
53	9793	WASKATENAU REAL
54	9795	WILLINGDON REAL
55	9798	ZAWALE REAL
56	9802	MIGHTY PEACE REA – Zone 3L
57	9808	BEAR LAKE REAL
58	9855	MIGHTY PEACE REAL – Zone 2
59	9881	SOUTH BEAVERLODGE REAL
60	9882	MIGHTY PEACE REAL – Zone 4
61	9915	BEAVER REAL ZONE 1

Table Ref ID	REA Code	REA Name
62	9919	DELBURNE REAL
63	9925	KNEEHILL REAL
64	9927	FENN REAL
65	9928	SOUTH PEACE REAL – WEST
66	9929	SOUTH PEACE REAL – EAST
67	9954	MELROSE REAL
68	9956	MUNSON REAL
69	9971	BEAVER REAL ZONE 2
70	9974	STERLING REAL
71	9987	BEAVER REAL ZONE 3

B5.8 Usage UOM

This is a four-character code representing the unit of measure for usage.

Table B5-5. Consumption UOM Codes

Table Ref ID	Consumption UOM Code	Consumption UOM Name
1	KWH	Kilowatt hour for electricity
2	GJ	Gigajoule for natural gas

B5.9 Site Production Reason Code

A four-digit code representing Site Production Reason.

Table B5-6. Site Production Reason Codes

Table Ref ID	Site Production Reason Code	Site Production Reason Code Name
1	2000	De-enrollment/retailer switch
2	2010	Customer switch/termination of contract
3	2020	Regular bill cycle
4	2030	Missing site (previously withheld from original tariff bill file)
5	2040	Accepted tariff billing dispute for most recently billed period
6	2050	Accepted tariff billing dispute for prior period
7	2060	Bundling or unbundling of totalized sites
8	2070	Other

Hierarchy Rules
Site production reason codes must be applied according to the hierarchy dictated in Table B5-5. Where site production reason codes coincide, a distributor must report the site production reason code that precedes other coinciding site production reasons.

B5.10 Cancel Reason Code

A four-digit code representing a reason for canceling a tariff charge or one-time charge.

Table B5-7. Cancel Reason Codes

Table Ref ID	Reason Code	Reason Code Name
1	3000	Preimplementation charge correction
2	3010	Site ownership correction
3	3020	Rate correction
4	3030	Estimate replacement with actual (true-up following estimate by tariff billing function)
5	3040	Meter read adjustment (from MDM function)
6	3050	Usage estimation revision
7	3060	Demand or miscellaneous determinant correction
8	3070	One-time charge correction
9	3080	Resolution of system error
10	3090	Other

Hierarchy Rules

Cancel reason codes must be applied according to the hierarchy dictated in Table B5-6. Where cancel reason codes coincide, a distributor must report the cancel reason code that precedes other coinciding cancel reasons.

B5.11 Tariff Rate Code

The distributor will maintain its respective tariff rate codes via a Tariff Rate Code File (TRC) and provide this to the EUB for publication, to fulfill the requirements of the Tariff Rate Code field in the tariff bill period header record of the tariff bill file. The contents of the Tariff Rate Code File are shown in Table B5-8.

Table B5-8. Tariff Rate Code File (TRC) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file.
2	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify a distributor's approved tariff.
3	Tariff Rate Code Description	Varchar(50)	MANDATORY – Description of the tariff rate code.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Tariff Rate Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Tariff Rate Code is no longer applied to current tariff charges. If the Tariff Rate Code has expired, this field is MANDATORY.

A single current version of the Tariff Rate Code File will be published on the EUB Web site at any given time.

B5.12 Site Status Code

A single-character code representing site status.

Table B5-9. Site Status Codes

Table Ref ID	Site Status Code	Site Status Code Name

Table Ref ID	Site Status Code	Site Status Code Name
1	D	De-energized (a de-energized site with no charges)
2	E	Energized
3	I	Idle (implies a de-energized site that incurs tariff charges)

B5.13 Meter Type Code

A single-character code representing Meter Type.

Table B5-10. Meter Type Codes

Table Ref ID	Meter Type Code	Meter Type Code Name
1	C	Cumulative
2	I	Interval
3	U	Unmetered
4	T	Totalized (gas commodity sites only)
5	S	Subtract (gas commodity sites only)

B5.14 Reading Type Code

A single-character code representing Reading Type.

Table B5-11. Reading Type Codes

Table Ref ID	Reading Type Code	Reading Type Code Name
1	A	Represents an actual read reported from MDM as ME or VE
2	C	Customer supplied read (if visible or available)
3	E	Estimate as reported by MDM as ES or estimated by T-billing function

B5.15 Demand Type Code

A four-digit code representing Demand Type.

Table B5-12. Demand Type Codes

Table Ref ID	Demand Type Code	Demand Type Code Name
1	4000	Billing
2	4010	Transmission Billing
3	4020	Distribution Billing
4	4030	Breaker Size
5	4040	Contract
6	4050	Transmission Contract
7	4060	Distribution Contract
8	4070	Deemed
9	4080	Metered
10	4090	Rate Minimum
11	4100	Ratchet
12	4110	Transmission Ratchet
13	4120	Distribution Ratchet
14	4130	Peak
15	4140	Coincident Peak

Table Ref ID	Demand Type Code	Demand Type Code Name
16	4150	System Coincident Peak
17	4160	Nominated Capacity Demand
18	4170	Excess Demand
19	4180	Service Billing
20	4190	Service Contract
21	4200	Service Ratchet

B5.16 Demand UOM

A maximum four-character code representing Demand UOM.

Table B5-13. Demand UOM Codes

Table Ref ID	Demand UOM Code	Demand UOM Code Name
1	GJ	Gigajoules
2	KM	Kilometre
3	KVA	Kilovolt Ampere
4	KVAR	Kilovolt Ampere Reactive
5	KW	Kilowatt
6	VA	Volt Ampere
7	VAR	Volt Ampere Reactive
8	WATT	Watt

B5.17 Unit Quantity UOM and Billed Quantity UOM

A maximum seven-character code representing unit of measure for unit quantity and billed quantity.

Table B5-14. Unit Quantity UOM and Billed Quantity UOM

Table Ref ID	Unit Quantity UOM Code	Measurement System	Unit Quantity UOM Code Name
1	A2H	Metric	Ampere Squared Hour
2	AH	Metric	Ampere Hour
3	AMP	Metric	Ampere
4	BDAY	Time	Business Day
5	C	Metric	Celsius
6	CALC	Other	Calculated
7	CCF	Imperial	Hundred Cubic Feet
8	CCM	Metric	1/100 Cubic Metre
9	CDAY	Time	Calendar Day
10	CF	Imperial	Cubic Feet
11	CM	Metric	Cubic Metres
12	CYD	Imperial	Cubic Yards
13	DOLR	Other	Dollar
14	DWEL	Other	Dwelling Unit
15	F	Imperial	Fahrenheit
16	FEET	Imperial	Feet

Table Ref ID	Unit Quantity UOM Code	Measurement System	Unit Quantity UOM Code Name
17	FIXT	Other	Fixture
18	FLAT	Other	Flat Fee
19	GJ	Metric	Gigajoules
20	GJMF	Imperial	Gigajoule/Thousand Cubic
21	HP	Imperial	Horsepower
22	HR	Time	Hour
23	KPA	Metric	Kilopascal
24	KQH	Metric	Kiloquadergy Hour
25	KV	Metric	Kilovolt
26	KVA	Metric	Kilovolt Ampere
27	KVAH	Metric	Kilovolt Ampere Hours
28	KVAR	Metric	Kilovolt Ampere Reactive
29	KVH	Metric	Kilovolt Hour
30	KVRH	Metric	Kilovolt Ampere Reactive
31	KW	Metric	Kilowatt
32	KWH	Metric	Kilowatt Hour
33	MCF	Imperial	Thousand Cubic Feet
34	MIN	Time	Minute
35	MON	Time	Month
36	MWH	Metric	Megawatt Hour
37	PERC	Other	Percent
38	PSI	Imperial	Pound per Square Inch
39	QH	Metric	Quadergy Hour
40	SITE	Other	Description
41	SM	Metric	Square Meters
42	UNIT	Other	Recycle Dwelling Units
43	V2H	Metric	Volt Squared Hour
44	VA	Metric	Volt Ampere
45	VAH	Metric	Volt Ampere Hour
46	VAR	Metric	Volt Ampere Reactive
47	VARH	Metric	Volt Ampere Reactive Hour
48	VH	Metric	Volt Hour
49	VOLT	Metric	Volt
50	VRH	Metric	VRH
51	WATT	Metric	Watt
52	WH	Metric	Watt Hour
53	XCM	Metric	1/1000 Cubic Metre
54	YR	Time	Year
55	KM	Metric	Kilometres
56	BFLAG	Other	Boolean Flag

B5.18 Tariff Cross Reference Codes

Each distributor will maintain its respective Tariff Cross Reference Codes via a Tariff Cross Reference Code File (TRF) and provide this to the EUB for publication, to fulfill the requirements of the Tariff Cross Reference Code field of the tariff bill file. The contents of the Tariff Cross Reference Code File are shown in Table B5-15.

Table B5-15. Tariff Cross Reference File (TRF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file.
2	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify a distributor's approved tariff.
3	Tariff Cross Reference Code	Varchar(9)	MANDATORY FIELD – Code to identify a distributor's tariff component (may be equivalent to the tariff rate code.)
4	Tariff Cross Reference Code Description	Varchar(50)	MANDATORY – Description of the tariff cross reference code.
5	Effective Date	Date format	MANDATORY FIELD – Date upon which the Tariff Cross Reference Code applies to tariff charges.
6	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Tariff Cross Reference Code is no longer applied to current tariff charges. If the tariff Cross Reference Code has expired, this field is MANDATORY.

For each distributor, a single current version of the Tariff Cross Reference Code File (TRF) will be published on the EUB Web site at any given time.

B5.19 Component Category Code

A four-digit code representing Component Category.

Table B5-16. Component Category Codes

Table Ref ID	Component Category Code	Component Category Code Name
1	5001	Distribution
2	5002	Local Access Fee
3	5003	Rider
4	5004	Transmission
5	5005	Service fees
6	5006	Rebates (i.e., site government)
7	5007	REA

B5.20 Component Basis Code

A single-character code representing Component Basis.

Table B5-17. Component Basis Codes

Table Ref ID	Component Basis Code	Component Basis Code Name
1	D	Demand
2	E	Energy

Table Ref ID	Component Basis Code	Component Basis Code Name
3	F	Fixed
4	P	Percentage (%) Based
5	Q	Power Quality (e.g., Deficient Power Factor)

B5.21 Component Type Code

Each distributor will maintain its respective Component Type Codes via a Component Type Code File (CTF) and provide this to the EUB for publication, to fulfill the requirements of the Component Type Code field of the tariff bill file. The contents of the Component Type Code File are shown in Table B5-18.

Table B5-18. Component Type Code File (CTF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file.
2	Component Type Code	Varchar(4)	MANDATORY FIELD – Standardized code to represent a distributor's charge component. Refer to Appendix B for further information.
3	Component Type Code Description	Varchar(50)	MANDATORY – Description of the component type code.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Component Type Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Component Type Code is no longer applied to current tariff charges. If the Component Type Code has expired, this field is MANDATORY.

For each distributor, a single current version of the Component Type Code File (CTF) will be published on the EUB Web site at any given time.

B5.22 One-Time Charge Code

Each distributor will maintain its respective One-Time Charge Codes via a One-Time Charge Code File (OCF) and provide this to the EUB for publication, to fulfill the requirements of the One-Time Charge Code field of the tariff bill file. The contents of the One-Time Charge Code File are shown in Table B5-19.

Table B5-19. One-Time Charge Code File (OCF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file.
2	One-time Charge Code	Varchar(4)	MANDATORY FIELD – Standardized code to represent a distributors' one-time charge. Refer to Appendix B for further information.
3	One-time Charge Code Description	Varchar(50)	MANDATORY – Description of the one-time charge code.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the One-Time Charge Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the One-Time charge Code is no longer applied to current tariff charges.

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file.
			If One-Time charge Code has expired, this field is MANDATORY.

A single current version of the One-Time Charge Code File (OCF) for each distributor will be published on the EUB Web site at any given time.

B5.23 Miscellaneous Determinant Code

Each distributor will maintain its respective Miscellaneous Determinant Codes via a Miscellaneous Determinant Code File (MDF) and provide this to the EUB for publication, to fulfill the requirements of the Miscellaneous Determinant Code field of the tariff bill file. The contents of the Miscellaneous Determinant Code File are shown in Table B5-20.

Table B5-20. Miscellaneous Determinant Code File (MDF) Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for a distributor. This identifier must equal that of the distributor or agent of the distributor responsible for sending the file and must adhere to the rules as defined in Schedule B of the SSC.
2	Miscellaneous Determinant Code	Varchar (4)	MANDATORY FIELD – Standardized Code to represent a miscellaneous determinant disclosed in a tariff bill file.
3	Miscellaneous Determinant Description	Varchar (40)	MANDATORY - Description of the Miscellaneous Determinant disclosed in a tariff bill file.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Miscellaneous Determinant Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Miscellaneous Determinant Code is no longer applied to current tariff charges. If the Miscellaneous Determinant Code has expired, this field is MANDATORY.

For each distributor, a single current version of the Miscellaneous Determinant Code File (MDF) will be published on the EUB Web site at any given time.

B5.24 Tariff Bill File (TBF) Rejection Code

A four-digit code representing a Tariff Bill File rejection code.

Table B5-21. Tariff Bill File Rejection Codes

Table Ref ID	TBF Rejection Code	TBF Rejection Code Name
1	6001	Invalid File Naming Convention
2	6002	Invalid File Format
3	6003	Invalid Record Production Sequence
4	6004	Failed Mandatory Field Logic
5	6005	Failed Conditional Field Logic
6	6006	Invalid Standard Code
7	6007	Non-unique Record ID

Table Ref ID	TBF Rejection Code	TBF Rejection Code Name
8	6008	Invalid Parent ID
9	6009	Invalid Retailer ID
10	6010	Invalid Distributor ID
11	6011	Invalid Date Logic
12	6012	Future Dates Found
13	6014	Misalignment of Current Billing Period and Tariff Bill Period(s)
14	6015	Failed Cancel Indicator Logic
15	6016	Tariff Bill Period Overlap (within Tariff Bill File)
16	6017	Misalignment of Usage Period(s) with Tariff Bill Period
17	6018	Usage Period Overlap (within a Tariff Bill Period)
18	6019	Usage Period Gap (within a Tariff Bill Period)
19	6020	Misalignment of Demand Period(s) with Tariff Bill Period
20	6021	Demand Period Overlap (within a Tariff Bill Period)
21	6022	Demand Period Gap (within a Tariff Bill Period)
22	6023	Misalignment of Charge Period(s) with Tariff Bill Period
23	6024	Charge Period Overlap (within a Tariff Bill Period)
24	6025	Charge Period Gap (within a Tariff Bill Period)
25	6026	Invalid Date Created (File Header)
26	6028	Invalid Usage Total (Site Header)
27	6029	Invalid Charge Total (Site Header)
28	6031	Invalid Usage Total (Tariff Bill Period Header)
29	6032	Invalid Charge Total (Tariff Bill Period Header)
30	6033	Invalid File Record Count (File Trailer)
31	6034	Invalid Charge Total (File Trailer)
32	6035	Missing Billing Demand Determinant Record
33	6036	Missing Usage Determinant Record
34	6038	Invalid Calculated Values
35	6040	Invalid Child Record Values
36	6041	Invalid Data Type
37	6042	Tariff Bill Period Gap (within current billing period)
38	6043	Failed Cancel Reference Logic
39	6044	Failed Cancel Value Logic
40	6045	Failed Current Billing Period Cancel Logic
41	6046	Misalignment of Usage/Charge Period Alignment
42	6047	Failed Current Billing Period Content
43	6048	Failed Tariff Bill File Reference ID

B5.25 Dispute Code

A four-digit code representing a tariff bill file dispute code.

Table B5-22. Dispute Codes

Table Ref ID	Dispute Code	Dispute Code Name
1	7000	Non-unique Record ID
2	7001	Failed Site Ownership
3	7003	Tariff Bill Period Gap (with previous Tariff Bill Files)
4	7004	Tariff Bill Period Overlap (with previous Tariff Bill Files)
5	7005	Invalid Usage Value
6	7008	Misalignment of Tariff Bill Periods with Tariff Bill Period Events
7	7009	Misalignment of Usage Periods with Usage Period Events
8	7010	Misalignment of Charge Periods with Charge Period Events
9	7011	Current From Dial Reading does not match previous To Dial Reading
10	7012	Duplicate One-time Charge
11	7013	Invalid Bill Cycle (Site Header)
12	7014	Invalid Meter Rollover

B5.26 CSA Transaction Status Code

A four-digit code representing the status of a CSA transaction.

Table B5-23. CSA Transaction Status Codes

Table Ref ID	Transaction Status Code	Transaction Status Name
1	0000 [NTD: Pending Change Request]	Accept
2	8001	Invalid site ID
3	8002	Invalid Retailer ID
4	8003	Invalid Distributor ID
5	8004	Invalid date
6	8005	Invalid transaction ID
7	8008	Other

B5.27 Irregular Bill Period Type Code

A four-digit code representing Irregular Bill Period Type.

Table B5-24. Irregular Bill Period Type Codes

Table Ref ID	Irregular Bill Period Type Code	Irregular Bill Period Type Code Name
1	9000	Regular cycle (under normal circumstances would adhere to the 27-35 day billing period rule)
2	9010	Irrigation
3	9020	Other seasonal

Appendix C Description of Attributing Time to Meter Readings

In the absence of a standard market approach to attributing time to meter readings, the purpose Appendix C is to provide retailers in the Alberta electricity and natural gas markets with visibility into the approach and methodologies employed by each distributor in attributing time to meter readings in order to disclose usage and tariff charges at a whole day level in the tariff bill file.

C1 ATCO Electric

There are three **fundamental data rules** that apply to all meter data, as follows:

- Cumulative meter data is recorded as being read at a deemed time of 23:59:59 of the meter-read date.
- Interval meter data is recorded as being read in real time (i.e., actual date and time of read) .
- Dates within the tariff file indicate:
    - Start-date = exclusive (i.e., read at 23:59:59)
    - End-date = inclusive (i.e., read at 23:59:59)

C1.1 Approach to New Meter Installation

Examples of a new meter installation are:

- A cumulative meter is installed, read, and site energized at 2:00 PM on 1 March. The DCM and associated tariff file would indicate that the usage period started on 1 March. Note the rule above indicating the deemed time of read.

An interval meter is installed, and site energized at 2:00 PM on 1 April. The DIM would have a start time of 00:00:00 hours on 1 April and would show zeros until energy was consumed at 2:00 PM. The tariff file would show a start date according to the fundamental rules described above, i.e., 31 March.

C1.2 Approach to Meter Switches

Note the fundamental rules described above apply to this situation as well.

Example of Cumulative to Cumulative Meter Switch (note fundamental data rules above)

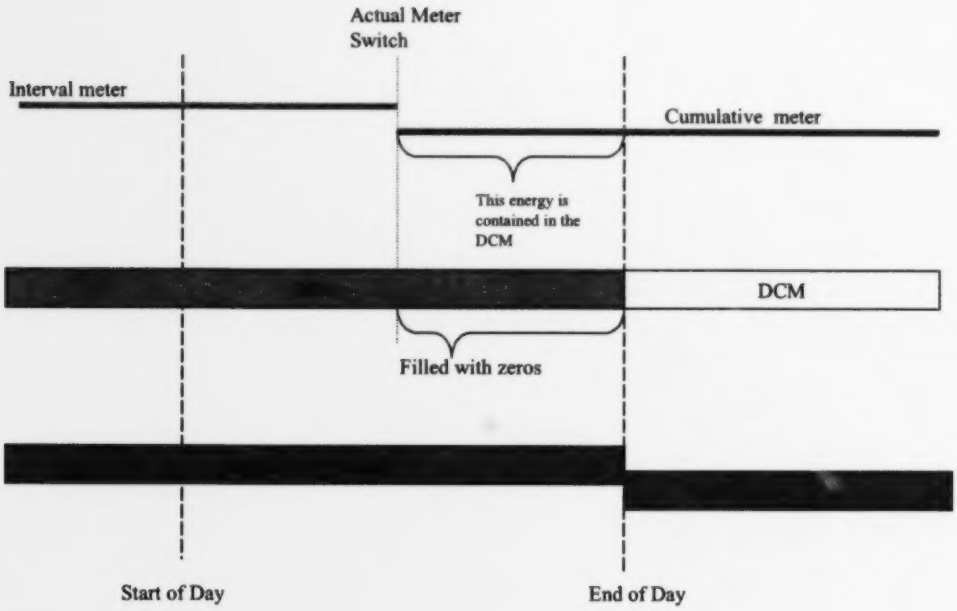
Meter is switched at 2:00 PM on 1 April. Old meter end read date = 31 March and new meter start read date = 1 April.

Example of Interval to Interval Meter Switch

Meter is switched at 2:00 PM on 1 May. Old meter end read date/time = 2:00 PM, 1 May and new meter start read date/time = 2:00 PM, 1 May.

Example of a Cumulative to Interval Meter Switch (Interval meter owns the switch day)

Example of an Interval to Cumulative Meter Switch (Interval meter owns the switch day)



C1.3 Approach to Energization/De-energization

Again note the fundamental rules described at the start of this section apply to these situations.

Example of an Energization of a site with a Cumulative Meter

The site is energized and meter read at 2:00 PM, 1 May. The DCM meter read start date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used in the following day. The start date in the tariff file = 1 May.

Example of a De-energization of a site with a Cumulative Meter

The site is de-energized and meter read at 2:00 PM, 1 May. The DCM meter read end date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used up to and including 1 May. The end date in the tariff file = 1 May.

Example of Energization of a site with an Interval Meter

The site is energized at 2:00 PM 1 May. The DIM would start at 00:00:00 hours on 1 May and be filled with zeros until energy was used at 2:00 PM. The tariff file would have a start date = 30 Apr.

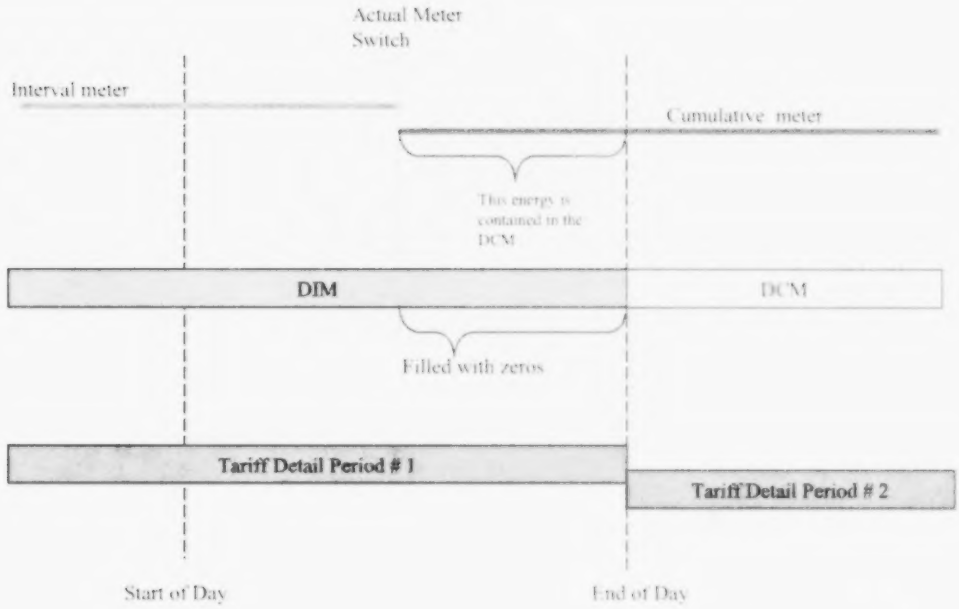
Example of De-energization of a site with an Interval Meter

The site is de-energized at 2:00 PM, 1 May. The DIM would end at 23:59:59 hours on 1 May and be filled with zeros from 2:00 PM until the end of the day. The tariff file would have an end date = 1 May.

C1.4 Approach to Continuous Energization

Refer to the fundamental rules at the start of this section.

Example of an Interval to Cumulative Meter Switch (Interval meter owns the switch day)



C1.3 Approach to Energization/De-energization

Again note the fundamental rules described at the start of this section apply to these situations.

Example of an Energization of a site with a Cumulative Meter

The site is energized and meter read at 2:00 PM, 1 May. The DCM meter read start date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used in the following day. The start date in the tariff file = 1 May.

Example of a De-energization of a site with a Cumulative Meter

The site is de-energized and meter read at 2:00 PM, 1 May. The DCM meter read end date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used up to and including 1 May. The end date in the tariff file = 1 May.

Example of Energization of a site with an Interval Meter

The site is energized at 2:00 PM 1 May. The DIM would start at 00:00:00 hours on 1 May and be filled with zeros until energy was used at 2:00 PM. The tariff file would have a start date = 30 Apr.

Example of De-energization of a site with an Interval Meter

The site is de-energized at 2:00 PM, 1 May. The DIM would end at 23:59:59 hours on 1 May and be filled with zeros from 2:00 PM until the end of the day. The tariff file would have an end date = 1 May.

C1.4 Approach to Continuous Energization

Refer to the fundamental rules at the start of this section.

C2 ATCO Gas

There are 2 **fundamental data rules** that apply to all meter data which are as follows:

- Cumulative meter data is recorded as being read at a deemed time of 23:59:59 of the meter-read date.
- Dates within the tariff file indicate:
  - Start-date = exclusive (i.e., read at 23:59:59)
  - End-date = inclusive (i.e., read at 23:59:59)

C2.1 Approach to New Meter Installation

Examples of a new meter installation are:

- A cumulative meter is installed, read, and site energized at 2:00 PM on 1 March. The DCM and associated tariff file would indicate that the usage period started on 1 March. Note the rule above indicating the deemed time of read.

C2.2 Approach to Meter Switches

Note the fundamental rules described above apply to this situation as well.
Example of Cumulative to Cumulative Meter Switch (note fundamental data rules above)
Meter is switched at 2:00 PM on 1 April. Old meter end read date = 31 March and new meter start read date = 1 April.

C2.3 Approach to Energization/De-energization

Again note the fundamental rules described at the start of this section apply to these situations.

Example of an Energization of a site with a Cumulative Meter
The site is energized and meter read at 2:00 PM, 1 May. The DCM meter read start date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used in the following day. The start date in the tariff file = 1 May.

Example of a De-energization of a site with a Cumulative Meter
The site is de-energized and meter read at 2:00 PM, 1 May. The DCM meter read end date = 1 May. The meter is deemed to be read at 23:59:59 therefore the energy is deemed to be used up to and including 1 May. The end date in the tariff file = 1 May.

C2.4 Approach to Continuous Energization

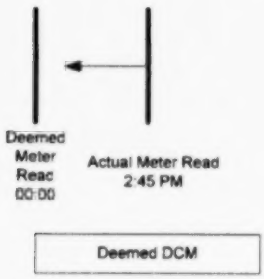
Refer to the fundamental rules at the start of this section.

C3 ENMAX Power

Since the bill file does not accommodate hourly determinants, Enmax Power will be moving to a deemed time of midnight 00:00:00 on all of our meter reads.

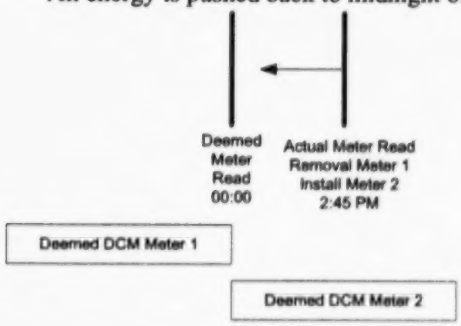
C3.1 Approach to New Meter Installations

Cumulative Meters deemed to be midnight (start) of the day of the read
Interval Meters deemed to be midnight (start) of the day of the install

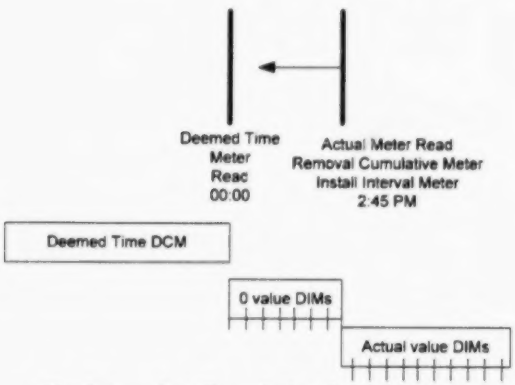


C3.2 Approach to Meter Switches

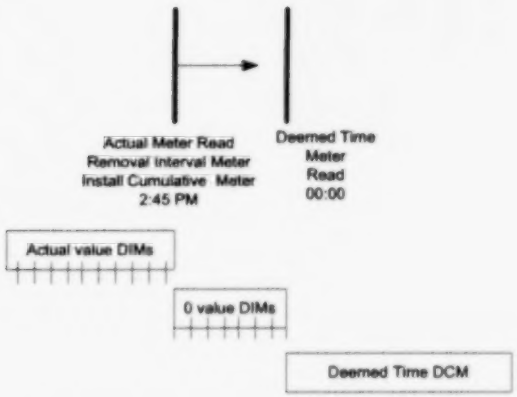
1) Cumulative to Cumulative Switch
   All energy is pushed back to midnight of the day the read is actually taken



2) Cumulative to Interval Switch
   - Cumulative deemed to midnight (start) of day of the read
   - Interval 0 filled to the start of the day of the install and actual times used
   - All energy used



3) Interval to Cumulative Switch
   - should seldom occur
   - would have to 0 fill interval to the end of the day
   - deem the cumulative read to start at midnight of the NEXT day



4) Interval to Interval Switch
- actual data used, no loss of energy

C4 EPCOR Distribution

EPCOR supports the use of full days for all charges and consumption/demand values. EPCOR Distribution Inc. will deem all consumption forward to midnight as part of this support (For example, if a read is taken at 2:15 pm on June 14th, the resulting DCM will be deemed to 00:00:00, June 15th). It is EPCOR's belief that this approach not only simplifies the Tariff Billing File, but it provides a more sensitive industry wide approach. Time stamps provide a level of confusion to Retailers and Customers.

C4.1 Approach to New Meter Installation

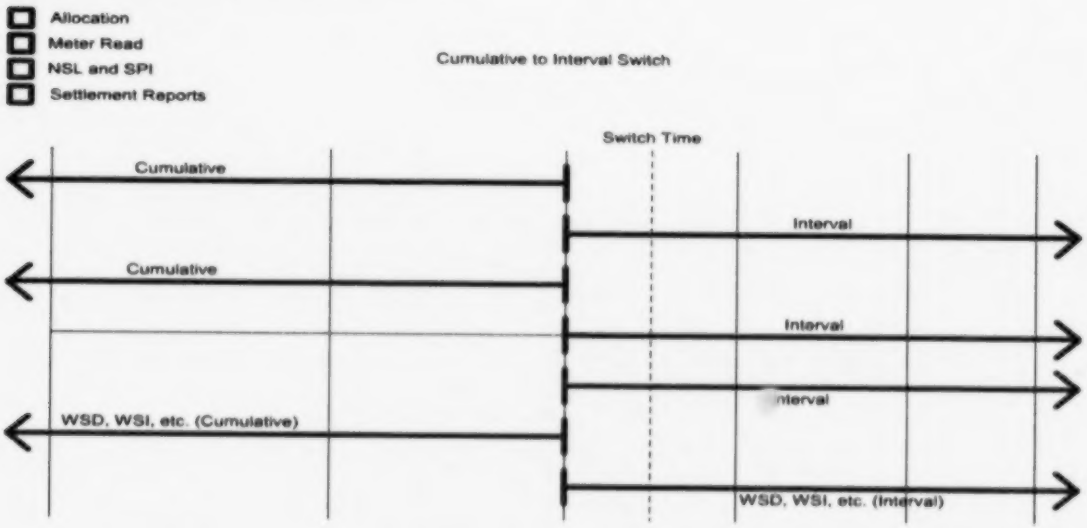
This situation follows the same approach as the meter switch. The only difference is in the Tariff Bill File. DCMs and DIMs would not be any different than section C1.2 below. In the case of the Tariff Bill File, a new service breaks a Tariff Bill Period (while a meter switch breaks only a usage period).

C4.2 Approach to Meter Switches

The following diagrams represent the suggested approach to meter switches (which are the situations, for which time stamps are intended to address)

1) Cumulative to Interval Switch

Diagram C-3 Cumulative to Interval Switch



- In this case consumption for the cumulative meter would be deemed back to midnight of the day (i.e. If the meter was removed on January 28th at 2:00pm, it would be deemed to end on January 28th at 00:00:00). This would account for all of the consumption . The only remaining risk is the pool price skew for those hours.
- The Interval meter would be deemed to midnight of the start of the day it was installed (i.e. If it was installed on January 28th at 2:00 pm, it would be deemed to start on January 28th at 00:00:00). For all intervals prior to the actual measurement of consumption, zeros would be inserted.
- DCM and DIMs would support the approach.
- The Tariff Bill File would have full days.
- The Usage Records in the Tariff Billing File would look as follows:

Tariff Billing File (Usage Section)

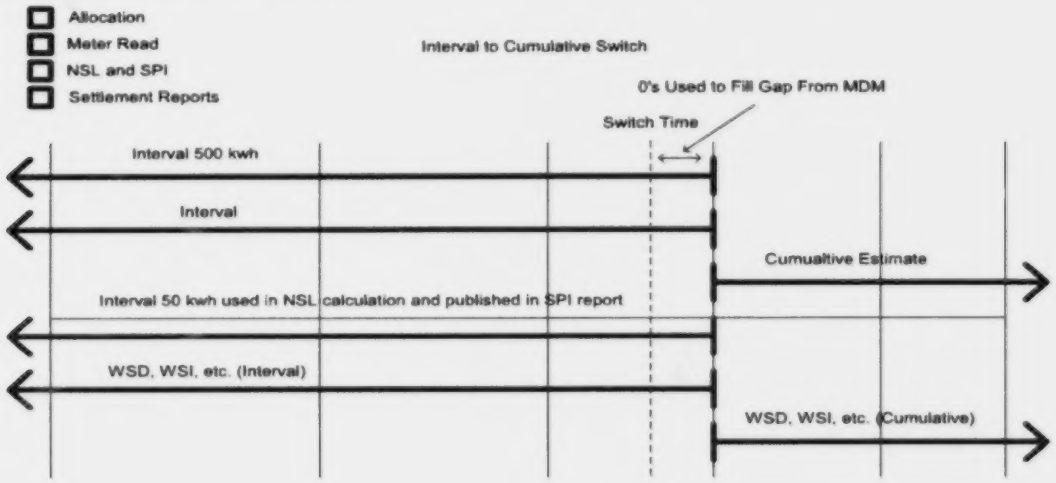
Determinants – Usage

From Date	To Date	Site Status Code	Meter Type Code	Meter Number	Number of Dials	From Reading	From Reading Code	To Reading	To Reading Code	Billing Multiplier	Measured Consumption Amount	Measured Consumption UOM	Transaction Type Code
20040116	20040127	ACTV	C	A251254965	4	5200	A	5600	A	1	400.00	kWh	O
20040128	20040214	ACTV	I								600.00	kWh	O

- The DCM and DIM would contain the following information:
  DCM - Meter A251254965, 1000 kWh, 20031218000000 , 20040128000000, 4600, 5600
  DIM - 20040128000000 = 0, …, 20040128140000 = 0, 20040128141500 = 0.2,
  20040128143000 = 0.1, ..., 20040128240000 = 0.0

2) Interval to Cumulative Switch

Diagram C-4 Interval to Cumulative Switch



- In this case consumption for the cumulative meter would be deemed at midnight of the following day (i.e. If the meter was installed at 2:00 pm on January 28th, it would be deemed to start at 00:00:00, January 29th). This would account for all of the consumption . The only remaining risk is the pool price skew for those hours.
- The Interval meter would be deemed to midnight of the end of the day it was removed (i.e. If the meter was removed at 2:00 pm on January 28th, it would be deemed to end at 00:00:00, January 29th). For all intervals following the actual measurement of consumption, zeros would be inserted.
- DCM and DIMs would support the approach.
- The Tariff Bill File would have full days.
- The Usage Records in the Tariff Billing File would look as follows:

Tariff Billing File (Usage Section)

Determinants – Usage

From Date	To Date	Rate Status Code	Meter Type Code	Meter Number	Number of Dials	From Reading	From Reading Code	To Reading	To Reading Code	Billing Multiplier	Metered Consumption Amount	Metered Consumption UOM	Measurement Type Code
20040115	20040128	ACTV	I								300.00	kWh	O
20040129	20040214	ACTV	C	A251254965	4	0000	A	0400	A	1	400.00	kWh	O

- The DCM and DIM would contain the following information:
  DIM - 20040128000000 = 0.1, …, 20040128140000 = 0.2, 20040128141500 = 0,
  20040128143000 = 0, …, 20040129000000 = 0
  DCM - Meter A251254965, 400 kWh, 20040129000000 , 20040214000000, 0, 400

3) Cumulative to Cumulative Switch

- Day belongs to the previous meter
- DCM will be deemed to reflect that

Tariff Billing File (Usage Section)

Determinants – Usage

From Date	To Date	Site Status Code	Meter Type Code	Meter Number	Number of Dials	From Reading	From Reading Code	To Reading	To Reading Code	Billing Multiplier	Measured Consumption Amount	Measured Consumption UOM	Transaction Type Code
20040115	20040128	ACTV	C	A251254965	4	5200	A	5600	A	1	400.00	kWh	O
20040129	20040214	ACTV	C	A251256666	5	00000	A	00400	E	1	400.00	kWh	O

4) Interval to Interval Switch

- Not applicable as file would not contain:
  - Number of Dials for Interval Sites
  - Meter Number
  - Reading Numbers To and From
  - Billing Multiplier
- No SMC and change would be shown
- DIM would not show the change

Tariff Billing File (Usage Section)

Determinants – Usage

From Date	To Date	Site Status Code	Meter Type Code	Meter Number	Number of Dials	From Reading	From Reading Code	To Reading	To Reading Code	Billing Multiplier	Measured Consumption Amount	Measured Consumption UOM	Transaction Type Code
20040115	20040214	ACTV	I								800.00	kWh	O

If the above methodology is implemented, the following modifications to the Tariff Billing Code would be required:

C4.3 Approach to Energization/De-energization

This situation follows the same approach as the meter switch. The only difference is in the Tariff Bill File. DCMs and DIMs would not be any different than section C1.2 below. In the case of the Tariff Bill File, a change of site status breaks a Tariff Bill Period (while a meter switch breaks only a usage period).

C4.4 Approach to Continuous Energization

EPCOR currently does not have this situation.

C5 FortisAlberta

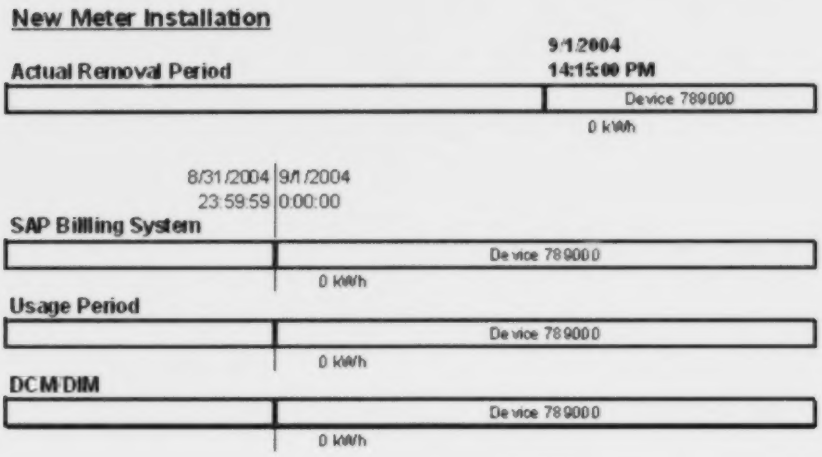
C5.1 Approach to New Meter Installation

For all cases of new meter installation, FortisAlberta deems the time to 00:00:00 of the day of installation.

Example – A meter is physically installed in the field at 14:15 in the afternoon on September 1, 2004. At the completion of the Dispatch order the meter is installed on the site in the FortisAlberta's Billing Engine billing engine at a deemed time of 00:00:00 September 1, 2004.

The usage period for a new installation would be effective from the date of installation. The usage would be calculated for the entire day as FortisAlberta deems the time equal to a full day.

A DCM for a new meter installation is also deemed to a time of 00:00:00 on the day of installation. The usage in a DCM would be attributed to the day of installation and would align with the tariff bill file usage.



C5.2 Approach to Meter Switch

FortisAlberta follows the same process for the following scenarios:

- Cumulative to Cumulative meter switch
- Cumulative to interval meter switch
- Interval to interval meter switch
- Interval to Cumulative meter switch

All meter removals conducted by FortisAlberta are deemed in the Billing Engine to the last second of the previous day. This allows FortisAlberta's Billing Engine to align the meter installation with the deemed time of the 00:00:00 of the actual install day.

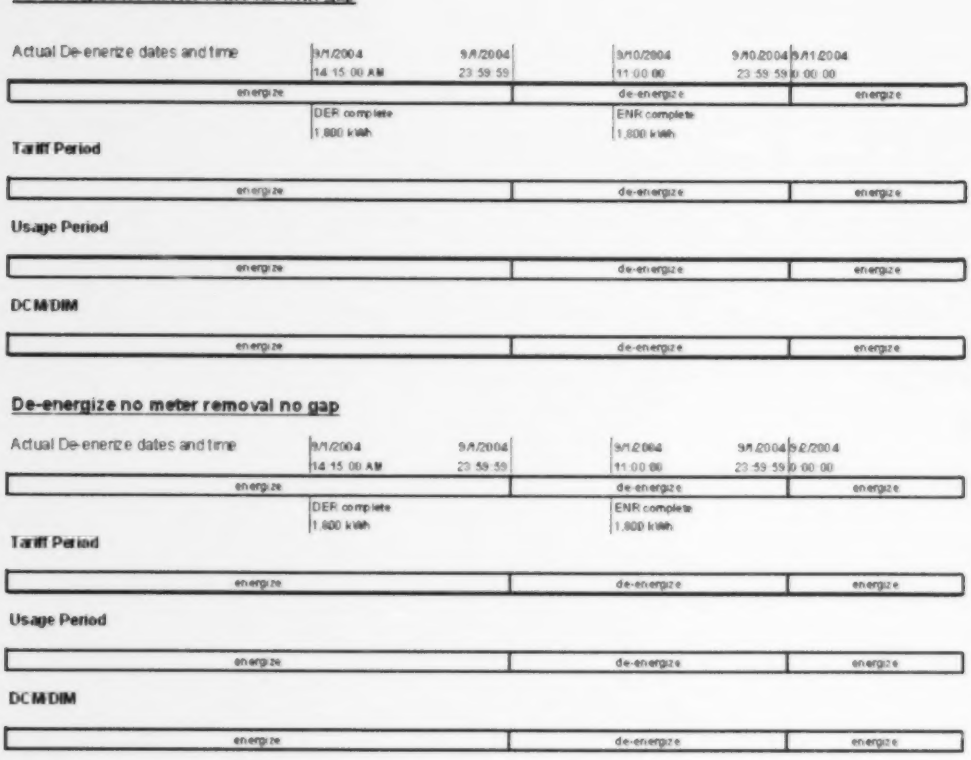
Example Scenario

Meter physically removed at site on September 1, 2004, at 14:00 p.m.
FortisAlberta's Billing Engine billing engine deems removal to 23:59:59 on August 31, 2004
Replacement meter installed on site at 14:15 p.m. on September 1, 2004
FortisAlberta's Billing Engine billing engine deems installation to 00:00:00 on September 1, 2004

C5.3 Approach to Energization/De-energization

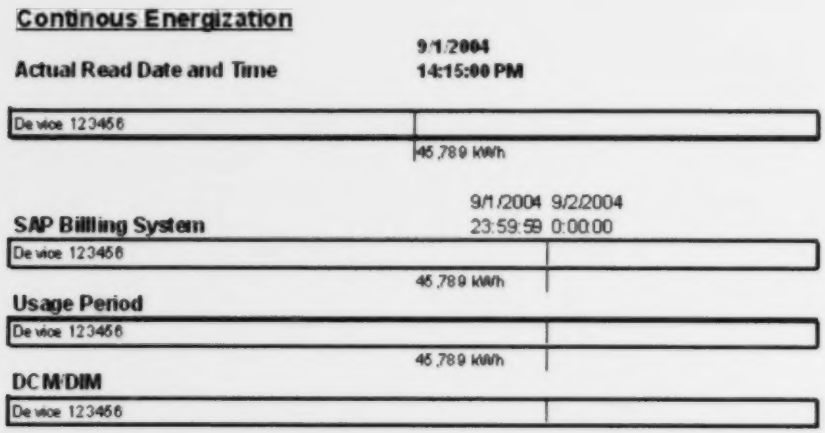
FortisAlberta deems all time for energizes and de-energizes in the Billing Engine. For a de-energize scenario the time is deemed to be equal to the last second, 23:59:59 of the day the de-energize is completed on.

For the various de-energize scenarios received by FortisAlberta the following 2 scenarios arise:



C5.4 Approach to Continuous Energization

FortisAlberta deems the time for all meter readings used in the billing engine. The following diagram outlines the allocation for a meter reading used for billing.



Appendix D Approach to Usage Estimate Corrections

In the absence of a standard market approach to usage estimate corrections, the purpose of Appendix D is to provide retailers in the Alberta electricity and natural gas markets with visibility into the position and approach employed by each distributor in correcting usage estimates and associated tariff charges following receipt of an actual meter read.

D1 ATCO Electric

ATCO Electric currently takes the following approach to cancel/rebill:

- If a prior period charge has to be cancelled and rebilled all subsequent billings since that prior period must also be cancelled and rebilled to ensure no gap between meter readings and consumption re-alignment
- There will never be partial charge period cancels
- Cancel/rebill can be triggered automatically or manually

Following receipt of an actual read, ATCO Electric may employ one of the following approaches:

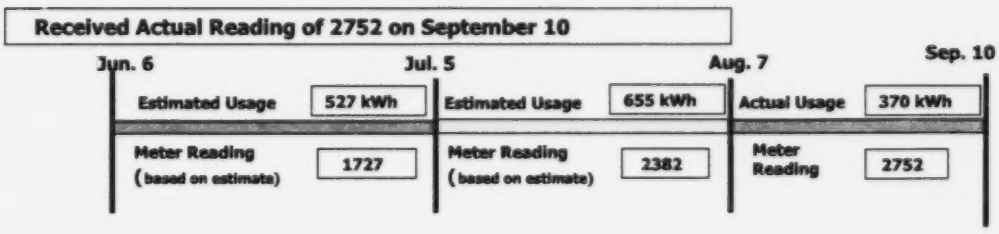
1. **Full Cancel/rebill - ATCO** Electric does not perform unconditional cancel/rebill.

2. **Net Difference** – ATCO Electric uses the Net Difference method when:
   - **Prior period usage was estimated** - the actual meter reading received is **greater than** the last reading used for billing **and** the last reading used for billing is an estimated read. The actual usage between the previous actual read and the current actual read will "true-up" the estimated usage. The "true-up process" will provide the net difference to be used for the current period billing.

3. **Conditional Cancel/rebill** will occur when:
   - **Prior period usage was over estimated** - the actual meter reading received is **less than** the last reading used for billing **and** the last reading used for billing is an estimated read
   - **Prior period usage was over estimated** - the actual meter reading received is less than the last reading used for billing. If the last reading used for billing is an actual read manual investigation will occur to determine whether the prior or the current read is in error. Cancel/rebill will occur after the decision is made
   - **Two different readings for the same time period** - the actual meter reading received covers the **exact time period** as the last reading used for billing **and** the prior readings is different from the current meter reading

Example 1: Net Difference

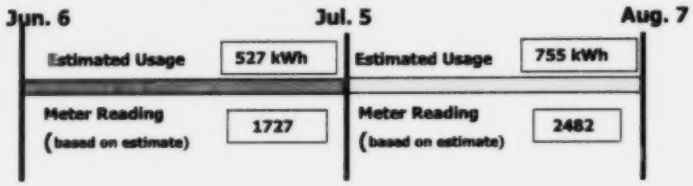
- Account estimated usage in August
- Actual meter reading of 2752 obtained on September 10
- Sept 10 reading > August 7 estimated reading, therefore no cancel and re-bill
- The estimate usage will be "trued-up"
- The net difference of 370 kWh is used for Sep. 10 billing



Example 2: Conditional Cancel/Re-bill

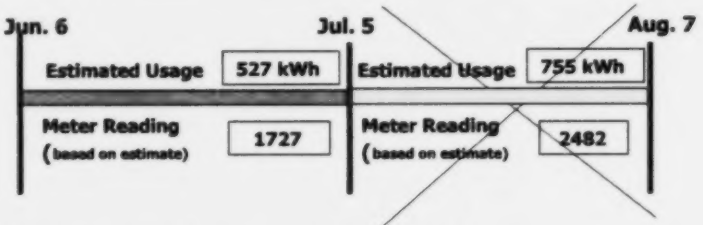
- Account estimated usage in August
- Actual meter reading obtained on September 10
- The meter reading is 2400 on September 10

Charge Periods



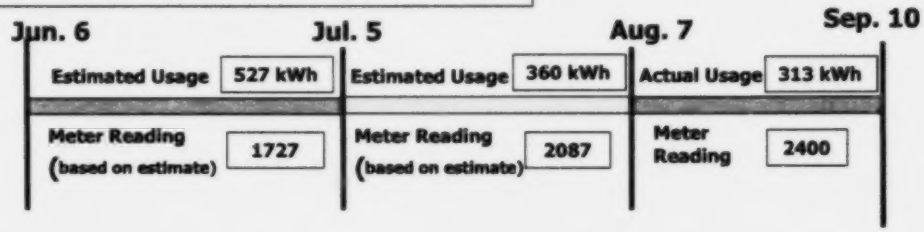
- August 7 estimated reading of 2482 > Sept. 10 actual reading of 2400
- Triggered to cancel July 5 - August 7 billing
- 755 kWh usage is cancelled

Received Actual Reading of 2400 on September 10



- System re-bill July 5 - August 7 billing
- System calculates usage of 673 kWh from Jul. 5 to Sept. 10
- System uses degree days formula to allocate usage for the Jul. 5 to Aug. 7 period
- The result is 360 kWh for July - Aug billing and 313 kWh for - Sept billing

Received Actual Reading of 2400 on September 10



D2 ATCO Gas

ATCO Gas currently takes the following approach to cancel/rebill:

- If a prior period charge has to be cancelled and rebilled all subsequent billings since that prior period must also be cancelled and rebilled to ensure no gap between meter readings and consumption re-alignment

- There will never be partial charge period cancels
- Cancel/rebill can be triggered automatically or manually

Following receipt of an actual read, ATCO Gas may employ one of the following approaches:

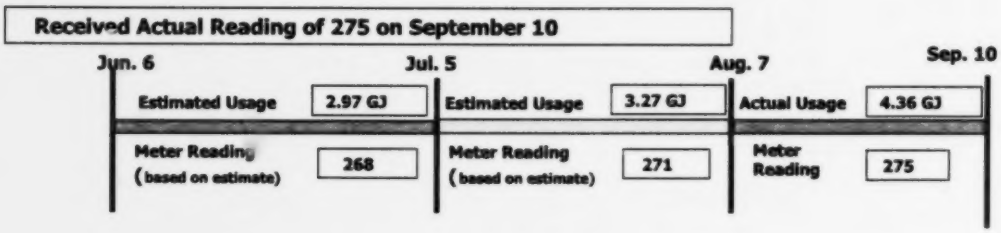
4. **Full Cancel/rebill** - ATCO Gas does not perform unconditional cancel/rebill.

5. **Net Difference** –ATCO Gas uses the Net Difference method when:
   - **Prior period usage was estimated** - the actual meter reading received is **greater than** the last reading used for billing **and** the last reading used for billing is an estimated read. The actual usage between the previous actual read and the current actual read will "true-up" the estimated usage. The "true-up process" will provide the net difference to be used for the current period billing.

6. **Conditional Cancel/rebill** will occur when:
   - **Prior period usage was over estimated** - the actual meter reading received is **less than** the last reading used for billing **and** the last reading used for billing is an estimated read
   - **Prior period usage was over estimated** - the actual meter reading received is less than the last reading used for billing. If the last reading used for billing is an actual read manual investigation will occur to determine whether the prior or the current read is in error. Cancel/rebill will occur after the decision is made
   - **Two different readings for the same time period** - the actual meter reading received covers the **exact time period** as the last reading used for billing **and** the prior readings is different from the current meter reading

Example 1: Net Difference

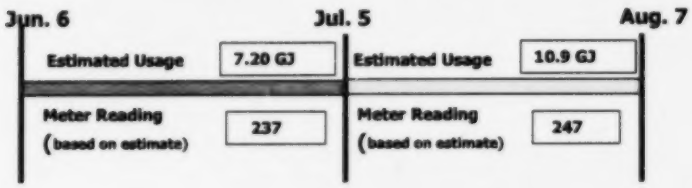
- Account estimated usage in August
- Actual meter reading of 275 obtained on September 10
- Sept 10 reading > August 7 estimated reading, therefore no cancel and re-bill
- The estimate usage will be "trued-up"
- The net difference of 4.36 GJ is used for Sep. 10 billing



Example 2: Conditional Cancel/Re-bill

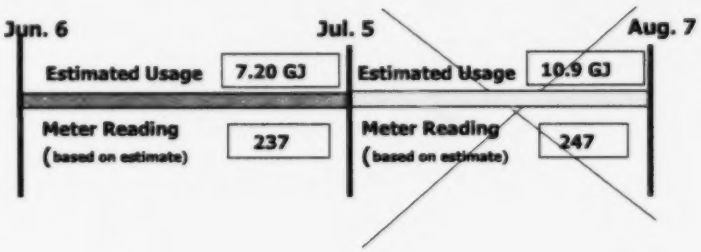
- Account estimated usage in August
- Actual meter reading obtained on September 10
- The meter reading is 245 on September 10

Charge Periods



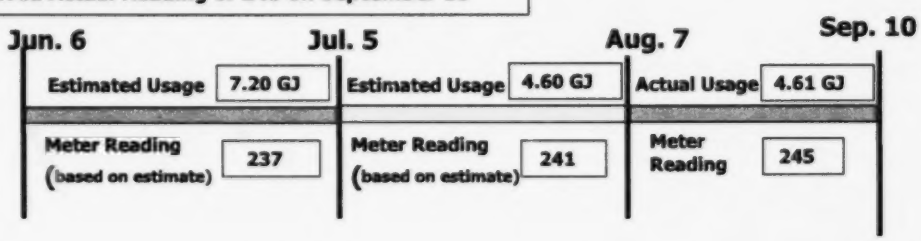
- August 7 estimated reading of 247 > Sept. 10 actual reading of 245
- Triggered to cancel July 5 - August 7 billing
- 10.9 GJ usage is cancelled

Received Actual Reading of 245 on September 10



- System re-bill July 5 - August 7 billing
- System calculates usage of 9.21 GJ from Jul. 5 to Sept. 10
- System uses degree days formula to allocate usage for the Jul. 5 to Aug. 7 period
- The result is 4.60 GJ for July - Aug billing and 4.61 GJ for Aug - Sept billing

Received Actual Reading of 245 on September 10



D3 ENMAX Power

Enmax Power will be performing a Cancel Rebill on all estimate to actual reads, even if there wasn't a kWh adjustment. Enmax Power will be applying a profile which matches the final settlement profile to any reads requiring allocation. This will ensure the consumption used in billing will exactly match what would have been done for a similar time period in Settlement to ensure that retailers are billed (from the Pool and for Tariff purposes) allocated energy on the same basis by which they bill the end customer.

D4 EPCOR Distribution

EPCOR's position is that **Full Cancel-Rebill** should be provided by billing period for all changes in past period charges. **EPCOR Distribution will follow such a model**. Materiality threshold tests or Distributor 'netting' will add complexity & delay, and will make reconciliation virtually impossible.

- Cancel-Rebill will occur at the Tariff Bill Period
- Each tariff bill adjusts for ALL prior periods that have changed with Cancel-Rebill
- Tariff Bill Periods are maintained for canceling and for rebilling.
- Tariff Bill Periods will have WSP unique ID
- Tariff period break must occur when a rate code or tariff unit price change occurs

D5 FortisAlberta

FortisAlberta applies the following approach to align estimates after the receipt of an actual.
Conditional Cancel/rebill - Overestimation workflow

When an actual read is entered into FortisAlberta's Billing Engine that is lower than the previous estimate and overestimation work flow is triggered. The conditions to trigger the overestimation are as follows:

- Read received must be a periodic read (scheduled cycle read)
- The read must pass the normal validations parameters as outlined in appendix A1.2
- The actual read must be less than or equal to the last estimate(s)
- The actual read must be greater than the last actual read

Once the conditions are met the workflow is triggered to perform the following steps.

a) reverse all applicable print documents
b) create new estimates using the following methodology:
c) calculate days between last actual reading for site and current actual
d) calculate difference in readings for consumption
e) divide consumption by number of days to find ADU
f) find numbers of days between last actual and incorrect estimates
g) apply ADU to number of days from last reading to determine correct consumption
h) adds consumption determined to last actual to determine correct dial reading

Example

Read	Date	Dial
Current actual	09/14/04	34,697
Last estimate	08/17/04	34,712
Last Actual	07/15/04	34,417

Recalculation of estimate

e) 9/14/04 - 7/15/04 = 61 days
f) 34697 - 34417 = 280 kWh
g) 280 / 61 = 4.590 ADU
h) 8/17/04 - 7/15/04 = 33 days
i) 4.590 * 33 = 151.4754 kWh
j) 34417 + 151.4754 = 34568

Note - FortisAlberta's Billing Engine does not perform any rounding on calculations until the last step.

Appendix E Preimplementation Charge Presentation

In the absence of a standard market approach to presenting adjustments for preimplementation charges, the purpose of Appendix E is to provide retailers in the Alberta electricity market with visibility into the position and approach employed by each distributor in presenting usage and tariff charge adjustments for usage and tariff charges incurred prior to the implementation of the Tariff Billing Code.

E1 ATCO Electric

ATCO Electric's compliance plan demonstrates 3 phases of implementation where charges that precede each phase will fail some validations. Charges applicable to periods that proceed July 1, 2006, will be presented as per production rules inherent to ATCO CIS processing standards that supported ATCOs' EBL file at that time. Presentation of ATCO Electrics' charges prior to Phase 3 implementation (as of February 28, 2007) will not fully conform to the requirements of the Tariff Billing Code.

Tables 1 and 2 provide processing detail and the associated validation rules that may not be met prior to final implementation of the noted Phases. General notes applicable to production rules or principles have also been included.

Table 1 – ATCO Electric Processing Prior to July 1, 2006

Item	Description	Presentation	Validation Failure
Table 3-1 (1)	Regular Bill Cycle	Cannot guarantee the length of the tariff bill period. ATCO CIS was designed for production of bill cycles ranging from 25 to 40 days.	General note.
Table 3-1 (5)	Customer Switch	CSA processing ability will commence at Phase 3.	General note
Table 3-1 (9)	Change In Site Status	Cannot guarantee a tariff period break when the site status is changed. A usage split is supported however tariff bill period splits were not supported. There will be no CH split.	Dispute # 7008 – Misalignment of Tariff Bill Periods with Tariff Bill Period Events
Table 3-1 (10)	MDM Metering Output	Prior to Phase 3 implementation, not all DCMs will result in a usage split.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (11)	Off Cycle Meter Reading	Not all off-cycle reads are used for billing prior to Phase 3.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (13)	Distribution Tariff Price Change (Energy Based Charges)	Usage periods are prorated into Charge Periods that are split by a rate change. Splitting of the usage and periods will be available at Phase 3.	Reject # 6046 – Misalignment of Usage/Charge Period Adjustment Also Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (15)	RRT Price Change	Not applicable (Exemption in Effect) Noted in compliance plan.	General note
Table 4-4 (8)	Tariff Bill Period Reference ID	This field will be blank if a cancel goes back into a period prior to implementation.	Reject # 6043 – Failed cancel reference logic
Table 4-4 (11)	Site Status Code	Cannot guarantee the correct site status. This refers to a cancel where the rebill will pick up the current site status code and may not display the status of the original charge. If the original was energized but it is not de-energized, we will be canceling a period where the status was energized but rebilling to a status of de-energized.	General note
Table 4-6 (9)	Demand Value	May not always have a DU record for a light that has been cancelled, depending on how far	Reject # 6003 – Invalid record production sequence

Item	Description	Presentation	Validation Failure
		back you cancel. In January 2003, AE began to include demand in the DCM for lights. Note: Lights are very rarely cancelled.	
Table 4-6 (12)	Ratchet Date/Time	ATCO CIS does not store these attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-6 (13)	Ratchet Period Months	ATCO CIS does not store this attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-8 (17)	Component Unit Price	May be inaccurate or may not match any published rate. This is applicable to complex rates that are manually billed where blending of component pricing was required in some cases. (Rate T31, D32)	General note
Table 4-8 (18)	Charge Amount	Manual calculations may not have all the components or may have inaccurate components. May not equal quantity x time x price. This applicable to complex rates that are manually billed. (Rate T31, D32)	Reject #6038 – Invalid calculated values.
Table 4-9 (7)	One Time Charge Reference ID	This field will be blank if a cancel goes back into a period prior to implementation.	Reject # 6043 - Failed cancel reference logic
	Billed Quantity Issue	May not be as expected for periods prior to daily pricing. Daily Rates to be in effect January 1, 2006.	General Note
	Time Calculation Type Incorrect	The Time Calc Type will always be a P prior to the elevation of the programs that change monthly to daily pricing. The change goes into effect Jan 1, 2006.	General Note
	Time Factor Incorrect	Time Factor will always be 1 prior to the elevation of the programs that change monthly to daily pricing. The change goes into effect Jan 1, 2006.	General Note
	Incorrect Demand Type for Breakers	Will be coded as deemed (4070) until Phase 3.	General note
	Demand Determinants Disclosure	An exemption has been granted. Full disclosure functionality will be available at approximately Phase 3.	General Note

Table 2 – ATCO Electric Processing Prior to February 28, 2007 but After July 1, 2006

Item	Description	Presentation	Validation Failure
Table 3-1 (5)	Customer Switch	CSA processing ability will commence at Phase 3.	General note
Table 3-1 (10)	MDM Metering Output	Prior to Phase 3 implementation, not all DCMs will result in a usage split.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (11)	Off Cycle Meter Reading	Not all off-cycle reads are used for billing prior to Phase 3.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (13)	Distribution Tariff Price Change (Energy Based Charges)	Usage periods are prorated into Charge Periods that are split by a rate change. Splitting of the usage and periods will be available at Phase 3.	Reject # 6046 – Misalignment of Usage/Charge Period Adjustment Also Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (15)	RRT Price Change	Not applicable (Exemption in Effect) Noted in compliance plan.	General note

Item	Description	Presentation	Validation Failure
Table 4-6 (12)	Ratchet Date/Time	ATCO CIS does not store these attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-6 (13)	Ratchet Period Months	ATCO CIS does not store this attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 5.1 File Format Validation Failure	Dollar Contracts	Charges cancelled back to a period where a dollar KW contract was active will not have determinant to support the calculation.	Reject #6038 – Invalid Calculated Values.
	Incorrect Demand Type for Breakers	Will be coded as deemed (4070) until Phase 3.	General note
	Demand Determinants Disclosure	An exemption has been granted. Full disclosure functionality will be available at approximately Phase 3.	General Note

E2 ATCO Gas

AGs' compliance plan demonstrates 3 phases of implementation where charges that precede each phase will fail some validations. Charges applicable to periods that proceed July 1, 2006 will be presented as per production rules inherent to ATCO CIS processing standards that supported ATCOs' EBL file at that time. Presentation of ATCO Gas's charges prior to Phase 3 implementation (as of February 28, 2007) will not fully conform to the requirements of the Tariff Billing Code.

Tables 1 and 2 provide processing detail and the associated validation rules that may not be met prior to final implementation of the noted Phases. General notes applicable to production rules or principles have also been included.

Table 1 – ATCO Gas Processing Prior to July 1, 2006

Item	Description	Presentation	Validation Failure
Table 3-1 (1)	Regular Bill Cycle	Cannot guarantee the length of the tariff bill period. ATCO CIS was designed for production of bill cycles ranging from 25 to 40 days.	General note.
Table 3-1 (5)	Customer Switch	CSA processing ability will commence at Phase 3.	General note
Table 3-1 (9)	Change in Site Status	Cannot guarantee a tariff period break when the site status is changed. A usage split is supported however tariff bill period splits were not supported. There will be no CH split.	Dispute # 7008 – Misalignment of Tariff Bill Periods with Tariff Bill Period Events
Table 3-1 (10)	MDM Metering Output	Prior to Phase 3 implementation, not all DCMs will result in a usage split.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (11)	Off Cycle Meter Reading	Not all off-cycle reads are used for billing prior to Phase 3.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (13)	Distribution Tariff Price Change (Energy Based Charges)	Usage periods are prorated into Charge Periods that are split by a rate change. Splitting of the usage and periods will be available at Phase 3.	Reject # 6046 – Misalignment of Usage/Charge Period Adjustment Also Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (15)	RRT Price Change	Not applicable (Exemption in Effect) Noted in compliance plan.	General note

Item	Description	Presentation	Validation Failure
Table 4-4 (8)	Tariff Bill Period Reference ID	This field will be blank if a cancel goes back into a period prior to implementation.	Reject # 6043 – Failed cancel reference logic
Table 4-4 (11)	Site Status Code	Cannot guarantee the correct site status. This refers to a cancel where the rebill will pick up the current site status code and may not display the status of the original charge. If the original was energized but it is not de-energized, we will be canceling a period where the status was energized but rebilling to a status of de-energized.	General note
Table 4-6 (12)	Ratchet Date/Time	ATCO CIS does not store these attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-6 (13)	Ratchet Period Months	ATCO CIS does not store this attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-9 (7)	One Time Charge Reference ID	This field will be blank if a cancel goes back into a period prior to implementation.	Reject # 6043 - Failed cancel reference logic
	Billed Quantity Issue	May not be as expected for periods prior to daily pricing. Daily Rates to be in effect January 1, 2006.	General Note
	Time Calculation Type Incorrect	The Time Calc Type will always be a P prior to the elevation of the programs that change monthly to daily pricing. The change goes into effect Jan 1, 2006.	General Note
	Time Factor Incorrect	Time Factor will always be 1 prior to the elevation of the programs that change monthly to daily pricing. The change goes into effect Jan 1, 2006.	General Note
Table 4.3.5 (6)	Heat Value Changes and effect on billing and DCM alignment	Prior to December 16, 2005 energy usage was calculated using rolling 30 day average heat values. After December 16, 2005 daily heat values will be used. Prior to Phase 3 for multi month periods the billing and DCM may not align due to rounding differences caused by using daily heat values over multi periods.	General Note

Table 2 – ATCO Gas Processing Prior to February 28, 2007 but After July 1, 2006

Item	Description	Presentation	Validation Failure
Table 3-1 (5)	Customer Switch	CSA processing ability will commence at Phase 3.	General note
Table 3-1 (10)	MDM Metering Output	Prior to Phase 3 implementation, not all DCMs will result in a usage split.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (11)	Off Cycle Meter Reading	Not all off-cycle reads are used for billing prior to Phase 3.	Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (13)	Distribution Tariff Price Change (Energy Based Charges)	Usage periods are prorated into Charge Periods that are split by a rate change. Splitting of the usage and periods will be available at Phase 3.	Reject # 6046 – Misalignment of Usage/Charge Period Adjustment Also Dispute # 7009 – Misalignment of Usage Periods with Usage Period Events
Table 3-1 (15)	RRT Price Change	Not applicable (Exemption in Effect) Noted in compliance plan.	General note

Item	Description	Presentation	Validation Failure
Table 4-6 (12)	Ratchet Date/Time	ATCO CIS does not store these attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4-6 (13)	Ratchet Period Months	ATCO CIS does not store this attributes until Phase 3.	Reject # 6005 – Failed Conditional Field Logic
Table 4.3.5 (6)	Heat Value Changes and effect on billing and DCM alignment	Prior to December 16 energy usage was calculated using rolling 30 day average heat values. After December 16 daily heat values will be used. . Prior to Phase 3 for multi month periods the billing and DCM may not align due to rounding differences caused by using daily heat values over multi periods.	General Note

E3 ENMAX Power

ENMAX Power will not be using the tariff bill file format for adjustments which occur prior to the implementation date. These results will be handled through the current processes (settlement based billing and/or manual adjustments).

The period previous to the transition will be final billed through the Settlement based process (7 months after go-live), from the transition day forward each site in the EPC territory will be billed with the Tariff Bill File.

The transition will be enabled through the use of a profile which matches the final settlement profile to any reads requiring allocation. This will ensure no impact to Settlement results due to the transition to meter cycle billing.

The same profile will be used for any cancel / rebills that cross the transition date. The TBF will be used to bill these sites from the transition date forwards.

E4 EPCOR Distribution Inc.

To comply with the RDS Regulation EPCOR Distribution Inc. is changing its Tariff Billing system from a "vertical" (Market-wide daily tariff billing) to a "horizontal" (Cycle based tariff billing) model, and is aligning it to settlement and meter reads.

Given the nature of the system there will be no phased release model. The entire system will have to go live in a single release. Subsequent versions may be added or developed in the future but initially a single release will be required given that all modules are strongly interconnected.

However, all transactions initiated prior to the RDS implementation date will be completed in the current system. This will require a parallel operation of both systems while these transactions are completed. This period should not need to be longer than 8 months following the RDS implementation date, as this is when final settlement of preimplementation transactions should occur.

The current system will be run monthly to process approximately 7 final, 3 interim, and 1 initial-monthly run in order to close all periods initiated in the old system. This means that Retailers will receive in those dates a regular Tariff billing File as mandated by the Tariff Billing Code and an Adjustment file for preimplementation charges with the current format.

The system must be rolled out to all stakeholder groups simultaneously as the live date will require the interaction of a variety of areas. This will require a great deal of coordination. However, training and Market testing can be phased in prior to the release date to assist in a smoother implementation.

E5 FortisAlberta

For FortisAlberta, preimplementation charges are those charges that were incurred prior to the implementation of the Tariff Billing Code on July 1, 2005. Preimplementation charges will be either:

1) Calculated and presented according to FortisAlberta's current practices for any adjustments relating to charges prior to August 1, 2003.
2) Presented in a tariff bill file for adjustments relating to charges from August 1, 2003 up to and including June 30, 2005. Cancel information relating to this preimplementation timeframe will match the original document with respect to the bill period, usage[12], demand and charge totals. However, charges that are rebilled for the same preimplementation timeframe, as well as preimplementation charges that span the July 1, 2005 cutover date, will follow the Tariff Bill Period exceptions noted in section E4.1. For these charge periods, FortisAlberta will cancel records utilizing a billing document number. This billing document number will be used to populate the Tariff Bill Period Cross Reference ID in the tariff bill period header record to reference preimplementation charges already presented.

Sample tariff bill files are available upon request that represent preimplementation charge presentation for each of the tariff billing events, cancel and rebills and during the transition period.

E5.1 Presentation Exceptions

The following section identifies where preimplementation charges, from August 1, 2003, up to and including June 30, 2005, will not fully conform to Tariff Bill File production and validation rules.

Prior to Tariff Billing Code Implementation, FortisAlberta did not create a tariff bill period break for some of the events listed in Table 3-1 of the Code. As a consequence, FortisAlberta is unable to recognize certain tariff billing events that occurred in the past, and therefore the rebill of preimplementation records will not fully meet the requirements of the Code.

Specific events in Table 3-1 of this Code impacted by this include:

1) Change in Site Status – prior to July 1, 2005, FortisAlberta did not consider a change in site status a tariff bill period event and a tariff bill period break will not occur on the effective date of a site status change (unless the effective timing of the site status change coincides with the effective timing of another tariff bill period event). Usage Determinant (DU) records will split according to the event and Tariff Charge (CH) records will split according to the event, if required. The result of this processing will be misalignment between tariff bill period, usage determinant, demand determinant and tariff charge records as well as usage determinant, demand determinant and tariff charge period gaps[13] within the tariff bill period.

   FortisAlberta has implemented new functionality to capture and track site status changes as of early April 2005 to support processing of site status changes in following implementation of the Tariff Billing Code on July 1, 2005.

2) Rate Code Change – prior to July 1, 2005, FortisAlberta did not consider rate code changes neither as a tariff bill period event nor as a usage period event. Neither a tariff bill period break nor a usage period break will occur for any of the scenarios listed in Table 3-1 for this event on the effective date

[12] In the August 1, 2003 to June 30, 2005 timeframe, usage was not reported for idle sites. In canceling preimnplementation charges for this period for an idle site, a Usage Determinant (DU) record will be included with Usage Amount = 0 KWH.

[13] A tariff charge period gap will only occur if the tariff charge record expresses a component basis code 'E' or 'D'.

of the rate code change (unless the effective timing of the rate code change coincides with the effective timing of another tariff bill period event or usage period event). Tariff Charge (CH) records will split according to the event, if required. The result of this processing will be misalignment between tariff bill period, usage determinant, demand determinant and tariff charge records as well as usage determinant, demand determinant and tariff charge period gaps[14] within the tariff bill period.

CSA processing and RRT Energy Rate Price Changes are tariff billing events dictated by the Tariff Billing Code and as a consequence will not impact preimplementation charges.

E5.2 Validation Exceptions

Tariff bill file content presented under the preimplementation charge scenarios expressed above will not pass the following file format validation tests, where the Tariff Bill Period End Date in the Tariff Bill Period Header (TH) record is less than or equal to 20050630:

1) Element 20 – Usage Period/Tariff Bill Period Alignment
2) Element 22 – Usage Period Gap (within a Tariff Bill Period)
3) Element 23 – Demand Period/Tariff Bill Period Alignment
4) Element 25 – Demand Period Gap (within a Tariff Bill Period)
5) Element 26 – Charge Period/Tariff Bill Period Alignment
6) Element 28 – Charge Period Gap (within a Tariff Bill Period)

Further, tariff bill file content will not pass the following file content validation tests, where the Tariff Bill Period End Date in the Tariff Bill Period Header (TH) record is less than or equal to 20050630:

1) Element 9 – Tariff Bill Period Events
2) Element 10 – Usage Period Events

[14] A tariff charge period gap will only occur if the tariff charge record expresses a component basis code 'E' or 'D'.

Appendix F Optional Transactions

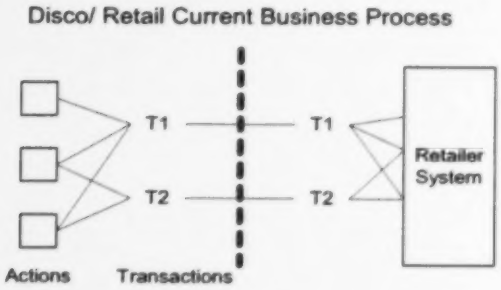
F1 Request for Information (RFI)

On an elective basis, EPCOR Distribution has proposed the following process and data transaction to enable synchronization of billing history between a distributor and retailer. This process is not mandated by this code and should be provided at the sole discretion of the distributor.

F1.1 Process Overview

The vertically integrated electric industry coordinated itself with legacy mainframe systems designed to ensure that data was accurate and consistent. In the new industry structure limited-scope transactions are used to communicate tariff billing events between distributors, retailers and the ISO. Retailers currently use these transactions to calculate Customer Bills.

Diagram F1-1 Disco/Retail Current Business Process



The Tariff Billing Code takes a first step, although not its main objective, towards achieving synchronization between systems. With the release of monthly files systems may get out of synch overtime, leading to potential disputes. Even though the code provides a dispute process to address potential issues between transacting parties, many of these disputes could be avoided by appropriate synchronization mechanisms. EPCOR believes a simple Request For Information transaction could be implemented, in which a retailer of record would be able to request site-specific information from a distributor. The return transaction from the distributor would include all available tariff and consumption information for that site for the period the retailer was the Retailer-of-Record. The retailer could then compare the information or simply loaded into their system, achieving synchronization.

F1.2 Request for Information (RFI) Transaction

The scope of this transaction is limited to a site or group of sites and to historic tariff and consumption information. Other synchronization methods for site characteristics, like broadband records have been introduced by EPCOR in the past and we will continue to develop them.

The RFI could have the following fields:

Table F1-1. Request for Information (RFI) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'RFI'.
2	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each record produced by a distributor to allow the distributor or retailer to refer specifically to the data record. This value must be unique to a distributor.
3	Sender ID	Retailer ID Format	MANDATORY FIELD – Unique identifier for a retailer. This identifier must equal that of the retailer sending the transaction and must adhere to the rules as defined in Schedule B of the SSC.

Element Sequence	Element (in sequence)	Data Type/Size	Description
4	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for the recipient (distributor). This identifier must equal that of the distributor receiving the transaction and must adhere to the rules as defined in Schedule B of the SSC.
5	Date Created	Datetime	MANDATORY FIELD – Date RFI transaction was created
6	Site ID	Site ID Format	MANDATORY – Unique identifier representing a site in the market. This value must adhere to the rules as defined in Schedule B of the SSC.
7	Requested Start Date	Date Format	OPTIONAL FILED – If [null], the information will start from enrollment of the site by the retailer
8	Requested End Date	Date Format	MANDATORY FIELD – Date (Inclusive) the information is to end. The information will be provided for the tariff bill periods the retailer was the retailer-of-record

The returning information would include all available information for the site in a Tariff Bill File format. The proposed method is no more than the restatement of all previously published information by the distributor and it should not trigger a distributor's invoice, as it is for information purposes only. In restating previously published information, the distributor must refer to the record IDs of the original transaction contents.

Production Rules:

The following production rules apply for the RFI transaction:

1) Data contained within a RFI transaction must adhere to the field level rules stated in Table F1-1.
2) The RFI will take place on the day of arrival.
3) The RFI will be responded with a file following the Tariff Bill File formats established by the Tariff Billing Code with the exception of the name, where instead of TBF, TBI will be used.
4) The requested period must be for the span of time the requestor was the retailer-of-record.
5) Where the retailer is not the retailer of record, the information will be provided for a maximum of 12 months as long as the appropriate customer consent is obtained and submitted according to The Electric Utilities Act, Code of Conduct Regulation AR160/2003 Part 2 Division 2 Section 10 (2).
6) An RFI has a limit start date of April 1, 2005
7) Information contained in the TBI is limited to the most current information (i.e., no original or cancelled periods will be included where adjustment have been made).
8) The TBI is limited to published Tariff Bill Periods (i.e., the Requested Start Date will be defaulted to the previous Tariff Bill Period Start Date and the Requested End
9) Date to the next Tariff Bill Period End Date). Subsequent phases may allow more flexibility in the Start and End dates.

F2 Tariff Billing Sites Withheld (TSW) Transaction

On an elective basis, EPCOR Distribution Inc. has proposed the following data transaction to enable a distributor to inform a retailer, in an automated fashion, of sites that have been withheld from presentation in a published tariff bill file. This process is not mandated by this code and should be provided at the sole discretion of the distributor.

F2.1 Tariff Billing Sites Withheld (TSW) Transaction

The TSW transaction enables a distributor to inform a retailer of sites withheld from presentation in a published tariff bill file in an automated fashion. This transaction is utilized to communicate to a retailer of standard content validation tests and production failures for a specific site. The contents of the TSW transaction are provided in Table F2-1.

Table F2-1. Tariff Billing Sites Withheld (TSW) Transaction Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TSW'
2	Retailer ID	Retailer ID Format	MANDATORY FIELD – Unique identifier for a retailer. This identifier must equal that of the retailer receiving the transaction.
3	Sender ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for the recipient (Distributor). This identifier must equal that of the distributor sending the transaction and must adhere to the rules as defined in Schedule B of the SSC.
4	Date Created	Datetime	MANDATORY FIELD – Date the TSW transaction was created
5	Record ID	Number(15)	MANDATORY FIELD – This must be a unique reference ID for each record produced by a distributor to allow the distributor or retailer to refer specifically to the data record.
6	Site ID	Site ID Format	MANDATORY – Unique identifier representing a site in the market. This value must adhere to the rules as defined in Schedule B of the SSC.
7	Commodity Code	Char(2)	MANDATORY – Standardized code representing commodity type. Refer to Appendix B for further information.
8	Zone ID	Zone ID Format	MANDATORY FIELD – Unique identifier for a zone within Alberta. Refer to Schedule B for further information.
9	Municipality ID	Number(4)	MANDATORY FIELD – Unique identifier representing a municipality in Alberta. Refer to Appendix B for further information.
10	REA Code	Char(4)	CONDITIONAL FIELD – Unique identifier representing a valid REA in Alberta. Refer to Appendix B for further information. If site is not within an REA Zone = [null].
11	Bill Cycle	Varchar(9)	MANDATORY FIELD – A value representing the bill cycle for a site. This value must match a distributor's published bill cycle.
12	Site Withheld Reason Code	Varchar(4)	MANDATORY FIELD - Populate with a standard code representing a site is being withheld due to failure of standard content validation tests or other internal production validation tests. See below for a list of acceptable values.
13	Additional Site Information	Varchar(50)	OPTIONAL FIELD – Free-form text field for providing additional site information

Production Rules:

The following production rules apply for the TSW transaction:

1) Data contained within the TSW transaction must adhere to the field level rules stated in Table F2-1.
2) Distributors must submit a TSW transaction on the same day as the tariff bill file.
3) A TSW transaction should be created for each Site Withheld Reason Code that has occurred.
4) Sites withheld are not included in the Tariff Bill File

F2.2 Site Withheld Reason Code for the TSW

A four-digit code representing Site Withheld Reason.

Table F2-2. Site Withheld Reason Codes

Table Ref ID	Site Production Reason Code	Site Production Reason Code Name
1	2500	Site withheld due to failure of standard content validation tests
2	2501	Site withheld due to failure of production validation tests
3	2502	Site withheld due to tariff calculation errors
4	2503	Other

F3 Tariff Bill Dispute Notification Transaction

F3.1 Tariff Bill Dispute Notification (TDN) Transaction

The TDN transaction enables a distributor to inform a retailer of the status and outcome of a Tariff Bill Dispute (TBD) transaction. This process is not mandated by the code and should be provided at the sole discretion of the distributor. The contents of the TDN transaction are provided in Table F3-1.

Table F3-1. Tariff Bill Dispute Notification (TDN) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TDN'.
2	Record ID	Number(15)	MANDATORY FIELD – Unique identifier for the Tariff Bill Dispute Notification transaction. This identifier must be unique to a distributor.
3	Sender ID	Distibutor ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the distributor or agent of the distributor sending the transaction and must adhere to the rules as defined in Schedule B of the SSC.
4	Retailer ID	Retailer ID Format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the retailer receiving the transaction and must adhere to the rules as defined in Schedule B of the SSC.
5	Date Created	Datetime Format	MANDATORY FIELD – Datetime the transaction was created.
6	Tariff Billing Dispute Record ID	Number(15)	MANDATORY FIELD – Reference to the Transaction ID of the TBD transaction containing the dispute that was investigated.
7	Ticket Number	Number(15)	OPTIONAL FIELD – Distributor issued ticket number for reference. The ticket number must be unique to a distributor.
8	Dispute Notification Status Code	Char(1)	MANDATORY FIELD – Code representing the status of the referenced TBD transaction. If a distributor acknowledges receipt of a TBD transaction = 'A'. If a distributor rejects a TBD transaction = 'R'. If a distributor completed the resolution of a TBD transaction = 'C'.
9	Resolution Code	Number(4)	CONDITIONAL FIELD – Standard code to indicate the reason for rejecting a TBD transaction. Refer to Table F3-2 for a list of acceptable values. If Dispute Notification Status Code = 'R' or 'C', this field is MANDATORY.
10	Resolution Text	Char(255)	CONDITIONAL FIELD – Free-form text field for providing additional TBD rejection information to a retailer. If Resolution Code = 'Other', this field is MANDATORY.

Production Rules:

The following production rules apply for the TDN transaction:

1) Data contained within the TDN transaction must adhere to the field level rules stated in Table F3-1.
2) Where a distributor has stated they will implement the TDN transaction, a TDN transaction must be created for all TBD transactions received by the distributor.
3) TBD transactions received by a distributor may be analyzed over a span of business days according to the timeframe prescribed by Table 2-1, and as a result, TDN transactions may be produced over the same timeframe.
4) Where the Dispute Notification Status Code = 'C', the cancel/rebill information for the site will be available to the retailer either
   a) in an off-cycle tariff bill file on the same day the TDN is issued for the most recently billed period, or
   b) in the next scheduled tariff bill file for that site for a prior billing period.

F3.2 Tariff Bill Dispute Resolution Code

A four-digit code representing tariff bill dispute resolution reason.

Table F3-2. TDN Resolution Codes

Table Ref ID	Transaction Resolution Code	Transaction Resolution Name
1	3500	Rejected – Invalid File Format
2	3510	Rejected – Invalid Reason Code
3	3520	Rejected – Duplicate TBD
4	3530	Rejected – Other
5	3540	Completed – Cancel / Rebill
6	3550	Completed – Other

F4 Site Cycle Change Transaction

The site cycle change transaction provides a notification to a retailer of record of site cycle changes. If a retailer does not accept future dated SCC transactions, it may depend solely on a distributor's published site cycle catalogue. This transaction does not supersede a distributor's obligation to maintain a current site cycle catalogue or its Web site. The contents of the SCC transaction are provided in Table F4-1.

Table F4-1. Site Cycle Change Transaction

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	SCC	MANDATORY FIELD – Transaction Abbreviation. This code must equal 'SCC'.
2	Date Created	Datetime Format	MANDATORY FIELD – Latter of the time the transaction was created or last modified.
3	Distributor ID	Distributor ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the distributor or agent of the distributor sending the transaction and must adhere to the rules as defined in Schedule B of the SSC.
4	Retailer ID	Retailer ID Format	MANDATORY FIELD – Unique identifier for the recipient. This value must equal that of the intended retailer receiving the transaction and must adhere to the rules as defined in Schedule B of the SSC.
5	Site ID	Site ID Format	MANDATORY FIELD – Unique identifier representing a site in the market. This value must adhere to the rules as defined in Schedule B of the SSC.
6	Bill Cycle	Varchar(9)	MANDATORY FIELD – Unique identifier for a distributor's bill cycle.
7	Effective Date	Datetime Format	MANDATORY FIELD – Date the site began to bill on the cycle
8	Future Bill Cycle	Varchar(9)	OPTIONAL FIELD – Unique identifier for a distributor's cycle indicating a site's future bill cycle.
9	Future Effective Date	Date Format	CONDITIONAL FIELD – Effective date of the future bill cycle. If Future Bill Cycle is populated, this field is MANDATORY.

Production Rules

The following production rules apply for the SCC transaction:

1) Data contained within the site cycle catalogue file must adhere to the field level rules stated in Table F4-1.
2) Only one record per site can be included in the file.
3) A valid transaction is effective on the Effective Date.
4) The SCC transaction will be optional for distributor's and retailers. Where distributor's and/ or retailers elect not to support this, they can rely on the Site Cycle File alone.

Appendix G Cancel/Rebill Methodology

In the absence of a standard market cancel/rebill approach for adjusting previously sent tariff charges, the purpose of Appendix H is to provide retailers in the Alberta electricity and natural gas markets with visibility into the cancel/rebill position and approach employed by each distributor in making adjustments for usage and tariff charges previously sent to a retailer.

G1 ATCO Electric

ATCO Electric will perform cancel/rebills for all of the periods from the point of the error forward to, and including, the current period.

G2 ATCO Gas

ATCO Gas will perform cancel/rebills for all of the periods from the point of the error forward to, and including, the current period.

G3 ENMAX Power Corporation

Enmax Power Corporation will perform cancel/rebills for all of the periods in sequence from the point of the error forwards. All of the events originally billed will also be rebilled, thereby preserving the original periods and only adding new breaks where required.
This rebill will occur once the adjusted market transactions have been sent.

G4 EPCOR Distribution

EPCOR Distribution Inc. will perform full cancel/rebill for only the affected periods from the point of the error.

G5 FortisAlberta

FortisAlberta will perform cancel/rebills for all of the periods in sequence from the point of the error forward.

Appendix H CSA Transaction Processing Methodology

In the absence of a standard market approach for processing CSA transactions, the purpose of Appendix I is to provide retailers in the Alberta electricity and natural gas markets with visibility into the position and approach employed by each distributor in processing CSA transactions received from retailers.

H1 ATCO Electric

ATCO Electric will accept CSA transactions with a future "Requested Effective Date". ATCO Electric will also accept CSA transactions with a "Requested Effective Date" in the past so long as the requested date does not precede the last billing date or the date of any charges created for that site.

H2 ATCO Gas

ATCO Gas will accept CSA transactions with a future "Requested Effective Date". ATCO Gas will also accept CSA transactions with a "Requested Effective Date" in the past so long as the requested date does not precede the last billing date or the date of any charges created for that site.

H3 ENMAX Power Corporation

Enmax Power Corporation will not provide the option of backdated or forward dated CSA transactions for version 1.2 of the Tariff Billing Code. EPC may consider processing of backdated CSA transactions in a future version of the Tariff Billing Code.

H4 EPCOR Distribution

EPCOR Distribution Inc. will only allow for backdated CSA transactions that are within 2 business days of the effective date. EPCOR believes it is in the best interest of the end customer and the retailer to allow for a 'grace period' after the effective date. This will help accommodate transmission errors, processing delays, and late calls received from the customer. EPCOR's official business rule is that the CSA must be received by 4 p.m., 2 business days after the effective date in the CSA transaction. So, if the retailer/end-customer requests that the CSA effective date be September 17th, the transaction would be accepted for processing up to 4 p.m. on September 19th. Ultimately, this will help ensure that the end customer receives a bill up to the date that they expected.

Conversely, EPCOR will not accept future dated CSA transactions. Accepting future dated transactions would increase the amount of storage and logic that would be needed to handle and maintain data in 'staging tables'. Moreover, accepting future dated CSA's would open the door to the possibility of canceling these transactions, for which there is no process. As a business practice, it is expected that retailers will hold any future dated CSA transactions and send them on the effective date. At this point, if there are any problems with transmitting the CSA, the 2-day grace period should be sufficient time to ensure that the CSA is sent successfully using the effective date as the cut off date of the bill.

H5 FortisAlberta

FortisAlberta will not provide the option of backward or future dating CSA transactions for version 1.0 of the Tariff Billing Code. However, FortisAlberta would consider providing this service in future versions of the Tariff Billing Code if required.

Appendix I Regulated Retailer's Approach to Identifying Sites Affected by an RRT Energy Rate Price Change

In the absence of a standard market approach for identifying sites affected by a retailer's RRT energy rate price change, the purpose of Appendix J is to provide distributors in the Alberta electricity and natural gas markets with visibility into the approach employed by each RRT retailer to identify sites affected by an RRT energy rate price change.

I1 ATCO I-Tek/Direct Energy

ATCO I-Tek/Direct Energy segments their sites by retailer ID and hence each distributor would be able to identify RRT sites by retailer ID.

I2 ENMAX Energy

Enmax Energy segments their sites by business function ID and hence each distributor would be able to identify RRT sites by business function ID.

I3 EPCOR Energy

EPCOR segments their sites into unique retailer IDs to support their business needs hence each distributor would be able to identify RRT sites by retailer ID.

Appendix J Transmission Tariff Standards

Appendix J of the Code defines the tariff billing standards that apply to the exchange of transmission tariff billing information between the ISO and a customer of the ISO, including the business transactions and the business rules that govern the production and use of these transactions.

J1 Summary of Tariff Billing Code Obligations

J1.1 Communicate with the Market

The following section identifies the ISO requirements to communicate with one or more market participants but leaves the method of communication at the sole discretion of the communicator.

J1.1.1 ISO Initiated Communication

The ISO is obligated to communicate the following:

1) To the EUB
   a) Their code compliance plan and self-certification statement as prescribed in Section 6.1 and Section 7 respectively.
   b) Their usage estimation methodology and any changes to these.
   c) Their process for adjusting tariff charges that were originally based on estimated usage following receipt of measured usage.
   d) Their process for adjusting tariff charges for preimplementation periods.
   e) Their process for cutover to the code standards, including plans for archiving and retrieval of historical data.
   f) Standard codes relevant to the ISO's presentation of tariff charges (as set out in Appendix J).

   Information communicated to the EUB will be made publicly available via the EUB's Web site (http://www.eub.gov.ab.ca)

2) To ISO Customers
   a) Restatement of tariff charges as a result of unexpected metering or billing errors.
   b) Approach to canceling/rebilling of previously sent tariff charges

J1.1.2 EUB Initiated Communication

The EUB is obligated to communicate the following to ISO customers
   a) Changes to standard codes relevant to the ISO's presentational from transmission tariff charges.

J1.2 Understand Published Tariffs

It is the ISO customer's responsibility to be familiar with the published tariffs of the ISO. In circumstances where insufficient tariff information is available to address customer concerns, that customer may request additional information from the ISO.

The information exchange mechanisms outlined in this code are intended to support transmission billing in terms of charge and charge determinant detail but are not intended to fully explain the basis for the tariff charges. While most charge determinant detail is self-explanatory, there are specific charges that will require application of provided determinants within the transmission tariff file against the published tariff structure. The ISO will be the primary point of contact to respond to inquiries and complaints from their customers about transmission services.

J1.3 Provision of Usage Information

The ISO must report settlement point usage in the transmission tariff file by tariff bill period. Transmission tariff file usage periods align scheduled billing periods and tariff bill periods.

Where metering data that spans the current billing period is not available, usage information will be estimated by Settlement Point ID and reported as such in the transmission tariff file. The ISO may employ a unique method for estimating usage for the purpose of tariff billing but must file their estimation methodology with the EUB (see Section J5).

J1.4 Determine Tariff Charges

For each Settlement Point ID, the ISO must calculate tariff charges according to its EUB-approved and published tariff.

J1.5 Full-Day Billing

To comply with the transmission tariff file standards, the ISO must present their tariff charges and usage information in terms of whole days, in accordance with the processes that they have filed with the EUB. The consequence of this obligation is that only one tariff rate code per Settlement Point ID may be presented in a full day.

J1.6 Presentation of Dates

In the production and presentation of the transmission tariff file and associated transactions, data is disclosed according to date ranges. To comply with the transmission tariff file standards, in all cases the start and end dates must be expressed as inclusive and inclusive respectively.

J1.7 Validate at Source

The ISO is obligated to validate transmission tariff files according to the standard file format and file content validation tests prescribed within Appendix J4 of this code, as well as perform other validation tests, prior to the transmission of transmission tariff files to their customers. The ISO is to withhold, in whole or in part, transmission tariff files until these files pass the required validation tests.

J1.8 Present Tariff Charges to ISO Customers

Tariff charges must be tied to scheduled billing periods and sent to customers according to the ISO's billing cycle, except in the case of off-cycle billing or settlement points withheld from presentation due to standard file content validation tests or other ISO validation test failures. Tariff charges must be presented according to the transmission tariff file production rules, as outlined in this code, to distinguish current billing period charges from prior period billing adjustments.

J1.9 Link Tariff Billing to Statement of Account

Prior to finalizing tariff charges on the statement of account, the ISO must provide time, as prescribed in Table J1-1 of this code, to enable an ISO customer to take receipt of a transmission tariff file, perform standard file format validation tests, and notify the ISO of test results. Upon receipt of notification from an ISO customer transmitting a TTA or TTR transaction, or the expiry of the prescribed timeframe, the ISO is obligated to fulfill its processing responsibilities as prescribed in Section J2.1.1 of this code. If the ISO receives notification of positive test results, does not receive negative test results within the prescribed timeframe as stated in Table J1-1 of this code, or determines that the negative test results are invalid, the ISO may proceed with issuing the ISO customer Statement of Account.

To enable ISO customers to perform reconciliation between transmission tariff billing and the ISO statement of account processing, the ISO must include in its statement of account a cross-reference to the invoice IDs contained within the transmission tariff file header record of the transmission tariff files relating to that statement of account. Tariff charges not attributable to a settlement point will not be included in a transmission tariff file and will be presented as a separate charge, accompanied by supporting detail, in the ISO statement of account or in another invoice. A transmission tariff file is limited to one ISO customer.

J1.10 Monitor Performance

The ISO is required to

1) structure their tariff billing processes and systems in a manner that allows them to achieve the time-based performance requirements outlined in Table J1-1; and
2) monitor their performance of code obligations against the metrics presented in Table J1-2 and provide monthly performance results to the EUB on a quarterly basis. The process and form for reporting performance results to the EUB are established outside of this code.

Table J1-1. Performance Requirements

Table Ref ID	Requirement	Measure	Responsibility	Target
1	Transmission Tariff file publication timing	Number of days from the end of a calendar month to publish a Transmission Tariff File.	ISO	Preliminary: 5 business days Final: 13 business days.
2	Standard file format validation timing	Number of business days following receipt of transmission tariff file to complete standard file format validation tests and transmit a TTA or TTR transaction.	ISO Customer	Maximum: 1 elapsed business day
3	File rejection response timing	Number of business days following receipt of a TTR transaction to transmit a TTN (accept or reject) transaction.	ISO	Maximum: 1 elapsed business day
4	File rejection resolution timing	Number of business days following transmittal of a TTN (accept) transaction to transmit a replacement transmission tariff file.	ISO	Maximum: 1 elapsed business day, excepting system failures[15]
5	Standard file content validation timing	Number of business days following receipt of a transmission tariff file to complete standard file content validation tests and transmit a TTD transaction(s).	Customer	Maximum: 2 elapsed business days
6	Dispute response timing	Number of business days following receipt of a TTD transaction to notify a customer of acceptance or rejection of the dispute.	ISO	Minimum: 1 elapsed business day Mean: 2 elapsed business days for 95% of disputes Maximum: 5 elapsed business days
7	Dispute resolution timing	Number of business days following receipt of a TTD transaction to resolve the dispute by transmitting a cancel and/or rebill, provided that the TTD transaction was accepted.	ISO	Minimum: 1 elapsed business day Mean: 5 elapsed business days for 95% of disputes Maximum: by next scheduled transmission tariff file publish date for the settlement point.

[15] System is unable to produce a tariff bill file output or experiences large-scale file validation failures.

Table Ref ID	Requirement	Measure	Responsibility	Target
8	Bill production timing for withheld settlement points	Number of business days required to transmit a settlement points' charges in an off-cycle transmission tariff file for a Settlement Point ID that was previously withheld from its scheduled transmission tariff file.	ISO	Minimum: 1 elapsed business day Mean: 5 elapsed business days for 95% of settlement points Maximum: within two billing cycles (i.e., by the next following scheduled transmission tariff file publish date for that settlement point)
9	ISO Standard Code Change Notice	Number of business days notice provided prior to effective date of 'Tariff Cross-Reference Code', 'Component Category Code'.	ISO	Minimum: 5 business days

Table J1-2. Performance Monitoring Metrics

Table Ref ID	Metric	Measure	Responsibility	Target
1	Reported file rejections	Count of TTR transactions produced by an ISO customer per calendar month. Formula: Count of TTR transactions produced by an ISO customer per calendar month.	ISO	0 per month
2	Invalid file rejections	Count of TTN (reject) transactions produced by the ISO per ISO customer per calendar month. Formula: Count of TTN (reject) transactions produced by the ISO per ISO customer per calendar month.	ISO	0 per ISO customer per month
3	Reported transmission tariff file disputes	Number of TTD transactions produced per calendar month. Formula: Count of TTD transactions produced by the ISO per calendar month.	ISO Customer	To be determined following a 3-month monitoring window
4	Reported tariff bill period disputes	Number of tariff bill periods disputed per calendar month. Formula: Count of distinct tariff bill periods disputed based on TTD transactions produced per calendar month.	ISO Customer	To be determined following a 3-month monitoring window
5	Invalid tariff bill period disputes	Count of TTD transactions that have been rejected by the ISO per ISO customer per calendar month. Formula: Count of TTD transactions that have been rejected by the ISO per ISO customer per calendar month.	ISO	0 per ISO customer per month

J2 Tariff Bill-Ready Model

This section of the code defines the process, data flow, procedural steps, and roles and responsibilities to support transmission billing. The business transactions referred to in this section are further discussed in Section J3.

J2.1 Customer Billing Process Flow

The process flow illustrated below depicts the activities that may take place on a regular cycle basis in the generation of tariff charges by the ISO.

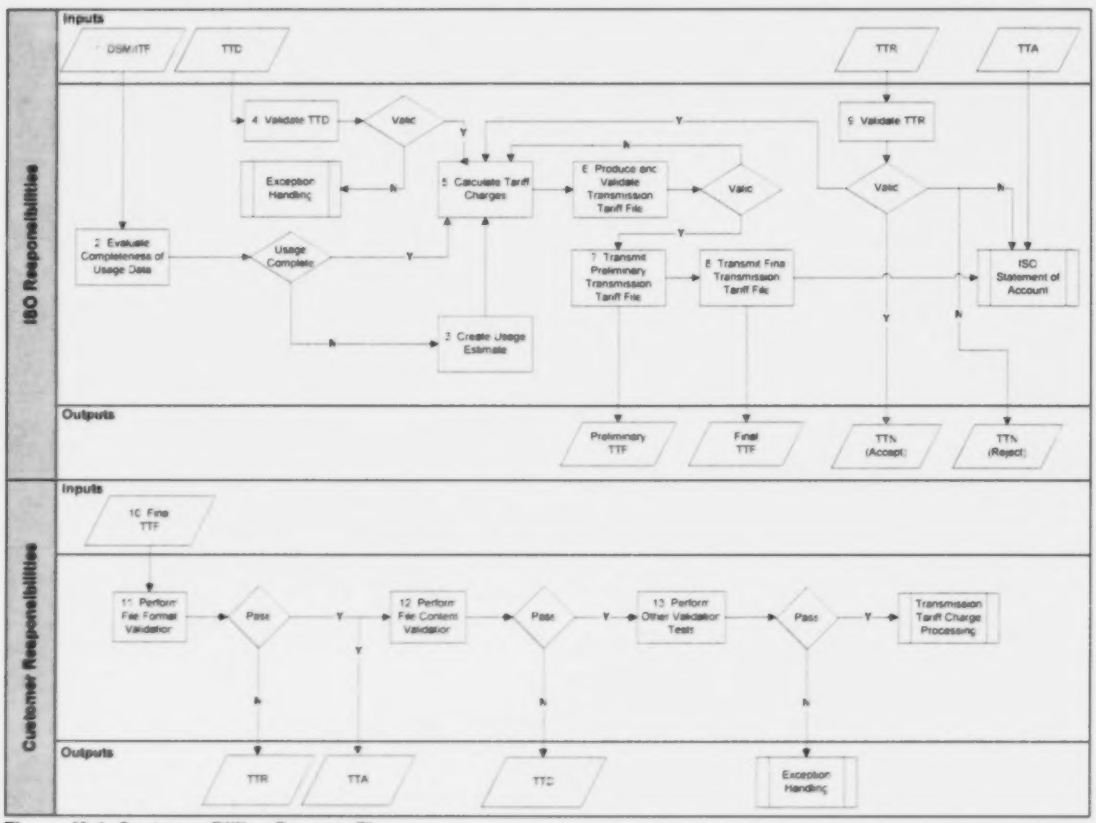


Figure J2-1. Customer Billing Process Flow

The following sections provide a description of ISO and ISO customer responsibilities with respect to performing procedural steps outlined in Figure J2-1. Each step corresponds to the numbered item in the figure.

J2.1.1 ISO Responsibilities

The ISO is responsible for performing the following procedural steps:

1) The meter data manager function of a customer submits ITF or DSM transactions (according to the rules established in the SSC or Measurement Systems Standard of the ISO).
2) The ISO evaluates the availability and completeness of usage information spanning the current billing period for each Settlement Point ID in the scheduled bill cycle.
   a) If step 1 provides metering data for a particular settlement point, the ISO proceeds to step 5.

b) If step 1 does not provide metering data for a particular Settlement Point ID (due to metering data validation failure or a missed read) or actual metering data spanning the scheduled billing period are not available, the ISO proceeds to step 3 and estimates usage information for that settlement point.

3) If actual metering data spanning the scheduled billing period are not available, usage information is estimated for the appropriate tariff bill periods in accordance with the ISO's usage estimation process (see J5).

4) If the ISO receives a TTD transaction, the ISO shall assess the validity of the dispute.
   a) If the TTD transaction is valid, the ISO proceeds to step 5.
   b) If the TTD transaction is not valid, the ISO will proceed with the exception handling process.

5) The ISO calculates tariff charges for each settlement point according to the ISO's published tariff billing schedule, except for tariff billing events that trigger the production of off-cycle tariff charges.

6) The ISO produces and validates the transmission tariff file according to transmission tariff file validation tests and other validation tests outlined in Sections J4.2 and J4.3.
   a) If the transmission tariff file produced in step 6 passes standard file format, standard file content, and other ISO validation tests, the ISO proceeds to step 7.
   b) If the transmission tariff file produced in step 6 fails standard file format, file content, and other ISO validation tests, the ISO either
      i) Withholds the entire transmission tariff file due to file format failures, or
      ii) Withholds from presentation the settlement point(s) and associated charges from the published transmission tariff file that failed these validation tests.

7) The ISO electronically transmits a preliminary transmission tariff file to the customer.

8) The ISO electronically transmits a final transmission tariff file to the customer. If the ISO does not receive a TTA or TTR transaction within the timeframe prescribed in Table J1-1, the ISO may proceed with the production of an ISO Statement of Account according to the provisions outlined in Section J1.9.

9) If the ISO receives a TTR transaction within the timeframe prescribed in Table J1-1, the ISO shall assess the validity of the rejection according to the standard file format validation tests in Section J4.2.
   a) If the TTR transaction is valid, the ISO sends a TTN transaction notifying the customer and proceeds to step 5.
   b) If the TTR transaction is not valid, the ISO sends a TTN transaction notifying the customer and then may proceed with the production of ISO statement of account according to the provisions outlined in Section J1.9.

J2.1.2 ISO Customer Responsibilities

ISO customers may, at their discretion, perform the following procedural steps:

10) The customer receives a final transmission tariff file from the ISO.

11) The customer performs standard file format validations according to the procedural steps in Section J4.2.
   a) If step 11 results in a single validation failure, the customer must send a TTA transaction to the ISO to indicate acceptance of the transmission tariff file and then proceeds to step 12.
   b) If step 11 results in no validation failures, the customer rejects the transmission tariff file and sends a TTR transaction to the ISO indicating the basis for the rejection via a standard rejection code.

12) The customer performs standard file content validations according to the procedural steps in Section J4.3.
   a) If step 12 results in no validation failures, the customer proceeds to step 13.

b) If step 12 results in one or more validation failures, the customer sends a TTD transaction to the ISO to indicate the transmission tariff file records under dispute and report the basis for the dispute via a standard dispute code. The customer then proceeds to step 13 for those settlement points that passed the standard file content validation.

13) The customer performs other validation tests according to internal processing or business rules:
   a) If step 13 results in no internal validation failures, the ISO customer proceeds with transmission tariff charge processing.
   b) If step 13 results in one or more internal validation failures, the customer may, at its discretion, dispute the data with the ISO through an exception handling process, but otherwise proceeds with transmission tariff charge processing.

If a customer does not transmit a TTA or TTR transaction within the prescribed timeframe as stated in Table J1-1, the ISO may proceed with the production of an ISO Statement of Account according to the provisions in Section J1.9.

J2.2 Tariff Billing Events

The ISO must present tariff charges to a ISO customer within a transmission tariff file according to specific tariff billing events that occur during the scheduled billing period.

Table J2-1 outlines the tariff billing events that the ISO must apply in the production of a transmission tariff file. Tariff billing events qualify as one or more of the following:

1) A transmission tariff file event triggering the production of a transmission tariff file or the inclusion of a settlement point in a transmission tariff file on a day other than the day dictated by the ISO's billing schedule.
2) A tariff bill period event triggering the start or end date of a tariff bill period.
3) A usage period event triggering the start or end date of a usage period.
4) A charge period event triggering the start or end date of a charge period.

Table J2-1 further characterizes tariff billing events in the following terms:

1) **M** (mandatory) indicates that the tariff billing event will trigger that event.
2) **O** (optional) indicates that the tariff billing event may optionally trigger that event.
3) **N** (not qualified) indicates that the tariff billing event does not qualify as a trigger for that event.

Where tariff billing events coincide on the same day, neither takes precedence over the other(s) in so far as all events qualifying as mandatory must be incorporated in transmission tariff file production.

Table J2-1. Tariff Billing Events

Table Ref ID	Tariff Billing Event	Description	Transmission Tariff File Event	Tariff Bill Period Event	Usage Period Event	Charge Period Event
1	Regular Bill Cycle	One of the following events has occurred: ▪ The close of a scheduled bill period has arrived.	M	M	M	M
2	Contract Established/ Modified	The enrollment of a Settlement Point with a customer as a result of: ▪ Establishment of a contract for a settlement point. ▪ Revision to an existing contract.	N	M	M	M

Table Ref ID	Tariff Billing Event	Description	Transmission Tariff File Event	Tariff Bill Period Event	Usage Period Event	Charge Period Event
3	Contract Termination	The de-enrollment of a Settlement Point with a customer as a result of: • Termination or expiry of a contract.	M	M	M	M
4	Missing Settlement Point	A Settlement Point was missing from the original transmission tariff file as a result of the following: • Settlement Point withheld from transmission tariff file production due to failure of standard content validation test.	M	M	M	M
5	Accepted Tariff Billing Dispute	The ISO presents adjustments as a result of resolution of a disputed tariff bill period arising from the most recently billed period or a prior billing period.	O	M	M	M
6	Tariff Price Change	A tariff price change has occurred as a result of one of the following: • Change in tariff structure. • Change in tariff pricing. • Addition of a rate rider.	N	O	M	M

J2.3 Tariff Billing Period Structure

The tariff billing period structure supports disclosure of tariff charges and related determinants according to unique periods of time. Section J2.2 describes the tariff billing events that trigger the breaking of any of these periods into smaller spans of time.

Starting with the scheduled billing period and culminating with the charge period, the following sub-sections explain the components of the tariff bill period structure and the relationships that exist between them. Figure J2-2 illustrates the tariff bill period structure.

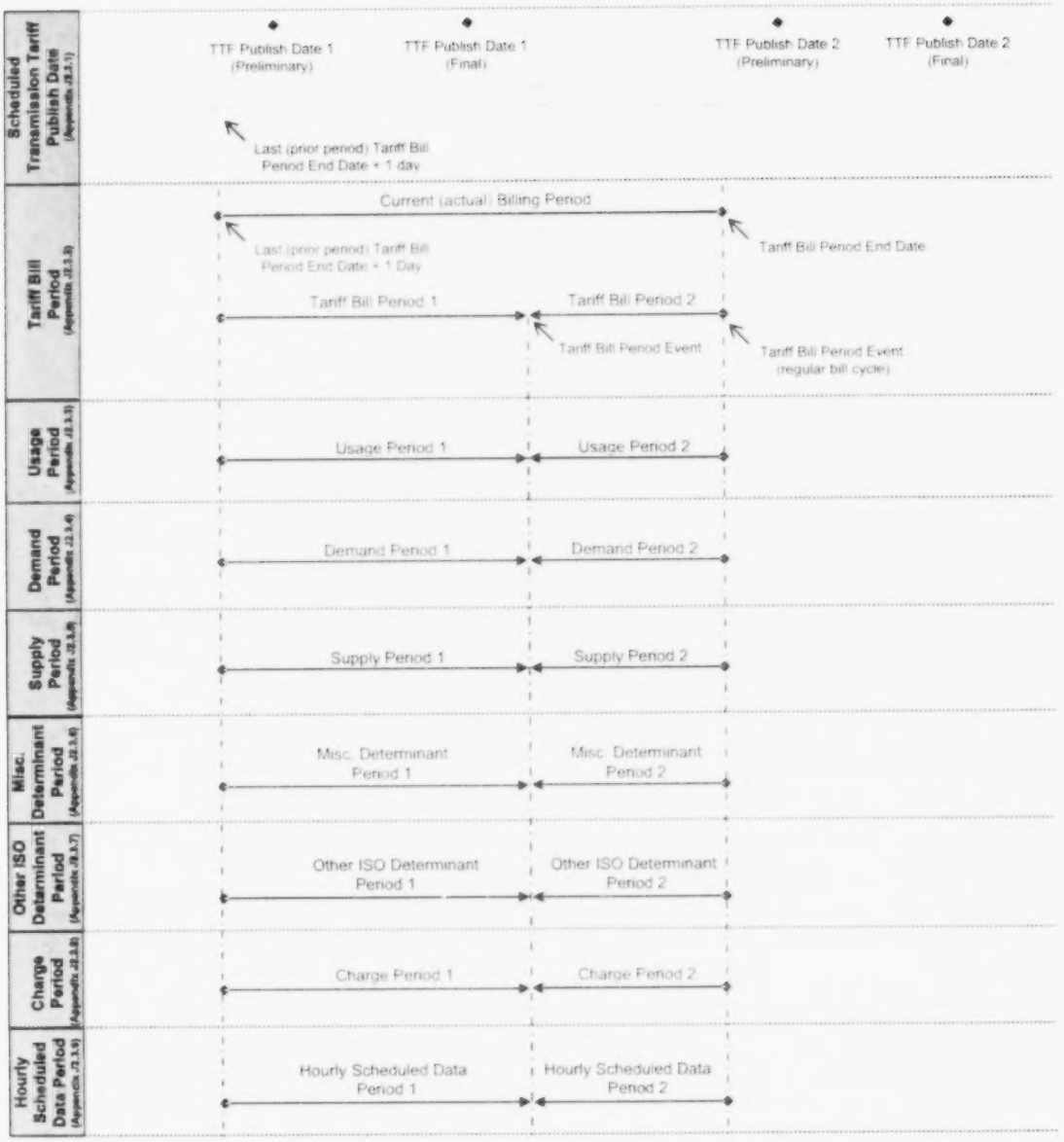

Scheduled Transmission Tariff Publish Date
TTF Publish Date 1 (Preliminary)
TTF Publish Date 1 (Final)
TTF Publish Date 2 (Preliminary)
TTF Publish Date 2 (Final)
Last (prior period) Tariff Bill Period End Date + 1 day
Tariff Bill Period
Current (actual) Billing Period
Last (prior period) Tariff Bill Period End Date + 1 Day
Tariff Bill Period End Date
Tariff Bill Period 1
Tariff Bill Period 2
Tariff Bill Period Event
Tariff Bill Period Event (regular bill cycle)
Usage Period
Usage Period 1
Usage Period 2
Demand Period
Demand Period 1
Demand Period 2
Supply Period
Supply Period 1
Supply Period 2
Misc. Determinant Period
Misc. Determinant Period 1
Misc. Determinant Period 2
Other ISO Determinant Period
Other ISO Determinant Period 1
Other ISO Determinant Period 2
Charge Period
Charge Period 1
Charge Period 2
Hourly Scheduled Data Period
Hourly Scheduled Data Period 1
Hourly Scheduled Data Period 2

Figure J2-2. Tariff Bill Period Structure

J2.3.1 Scheduled Transmission Tariff File Publish Date

The scheduled transmission tariff file publish date in combination with the end date of the last tariff bill period received in a previous transmission tariff file enables a customer to infer the scheduled billing period for any one of its settlement points. The ISO also publishes their settlement period timings on their Web site (http: www.aeso.ca), which notifies customers of the timing of cancel and rebills for prior period adjustments related to settlement.

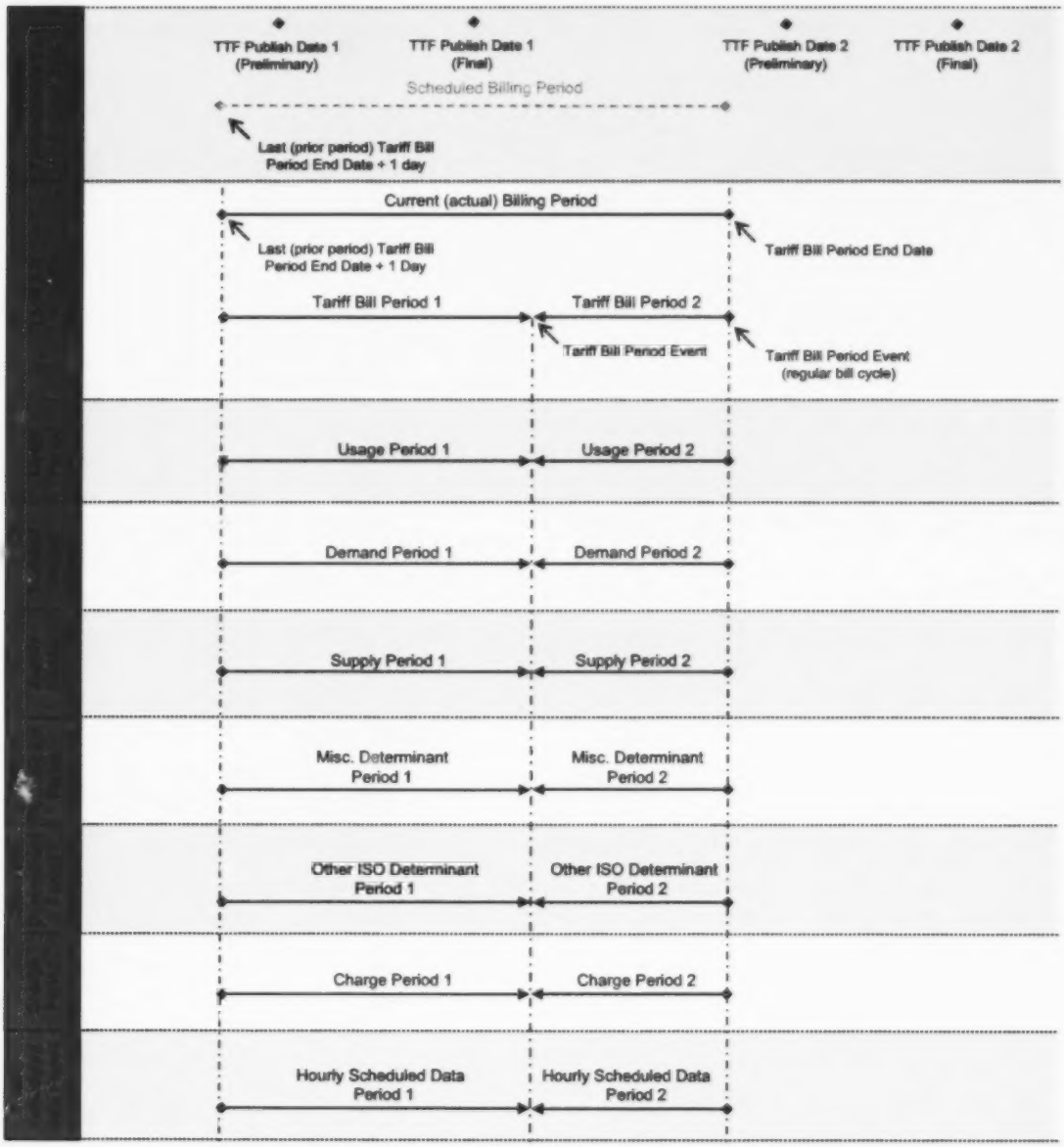


Figure J2-2. Tariff Bill Period Structure

J2.3.1 Scheduled Transmission Tariff File Publish Date

The scheduled transmission tariff file publish date in combination with the end date of the last tariff bill period received in a previous transmission tariff file enables a customer to infer the scheduled billing period for any one of its settlement points. The ISO also publishes their settlement period timings on their Web site (http://www.aeso.ca), which notifies customers of the timing of cancel and rebills for prior period adjustments related to settlement.

J2.3.2 Tariff Bill Period

The tariff bill period refers to a span of time bound by tariff billing events within which tariff charges are presented for a settlement point.

The start date of a tariff bill period is equivalent to the later of

1) the end date of a previous tariff bill period contained within the current or a prior transmission tariff file plus one day, or
2) the date of a tariff bill period event such as the establishment of a contract.

The end of the tariff bill period is equivalent to the earlier of

1) the effective date of a tariff bill period event (as described in Table J2-1), or
2) the date of the regular bill cycle denoting the end of a scheduled billing cycle.

Each tariff bill period within a transmission tariff file establishes the boundaries within which usage must be allocated and/or tariff charges presented. However, a single settlement point may require more than one tariff bill period to span the timeframe established by the end date (plus one day) of the last tariff bill period presented for that settlement point and the end date of that settlement point's scheduled billing period. Consequently, a series of one or more continuous tariff bill periods, excluding cancel/rebills, is referred to as the current billing period and should normally start on the first day of a calendar month and end on the last day of that same calendar month, with the exception of

1) presentation of a settlement point on cycle that spans multiple scheduled billing periods as a result of being missed in the previous bill cycle, or
2) presentation of a settlement point on cycle that spans multiple scheduled billing periods as a result of being withheld from its scheduled transmission tariff file due to failure of standard file format or content validations and/or failure of ad-hoc validations performed by the ISO.

J2.3.3 Usage Period

A usage period refers to a whole day span of time bound by the effective timing of usage period events where usage is determined for a settlement point. A single tariff bill period will require only one usage period to span the timeframe established by the tariff bill period start and end dates.

J2.3.4 Demand Period

The demand period represents a period of time expressed in terms of whole days and is bound by the start and end date of an associated tariff bill period in the case of all types of demand. A single tariff bill period will require only one demand period to span the timeframe established by the tariff bill period start and end dates, where relevant.

J2.3.5 Supply Period

The supply period represents a period of time expressed in terms of whole days and is bound by the start and the end date of an associated tariff bill period in the case of all types of supply. A single tariff bill period will require only one supply period to span the timeframe established by the tariff bill period start and end dates, where relevant.

J2.3.6 Other ISO Determinant Period

The other ISO Determinant period represents a period of time expressed in terms of partial days and is bound by the start and end dates of an associated tariff bill period. A single tariff bill period will require only one other ISO determinant period to span the timeframe established by the tariff bill period start and end dates, where relevant.

J2.3.7 Miscellaneous Determinant Period

The Miscellaneous Determinant period represents a period of time expressed in terms of whole days and is bound by the start and end dates of an associated tariff bill period. A single tariff bill period will require only one miscellaneous determinant period to span the timeframe established by the tariff bill period start and end dates, where relevant.

J2.3.8 Charge Period

The charge period refers to a span of time bound by the effective timing of charge period events and is aligned to the tariff bill period start and end dates. A single tariff bill period will require only one charge period to span the timeframe established by the tariff bill period start and end dates.

J2.3.9 Hourly Scheduled Data Period

A single tariff bill period will require all hourly scheduled data in the period to span the timeframe established by the tariff bill period start and end dates, where relevant.

J3 Information Exchange

This section of the code defines business transaction standards that apply to the exchange of tariff billing information between the ISO and its customers and the business rules that govern the production and use of these transactions.

J3.1 Information Exchange

The standards presented in the following sections are intended to be as specific as practical to facilitate data exchange between the ISO and its customers. At the same time, the EUB recognizes that problems or issues may arise with individual market participants during system implementation and/or changes in market structure that would necessitate an adjustment to the standards. The EUB may consider revising these standards upon presentation of a documented need to do so by a market participant. The EUB may also grant a market participant a temporary exemption (as prescribed in Section 6.1) from these standards, provided that the deviation from the standards is necessary and reasonable and the resulting effect on the operation of the market is minimal.

J3.1.1 Electronic Transmission Tariff File and Associated Transactions

The standard transmission tariff file and the associated transactions required to support the tariff billing process are listed in Table J3-1. All transactions listed in the table that require electronic transmittal between the ISO and a customer of the ISO are to be sent via email.

Table J3-1. Transmission Tariff File and Associated Transactions

Table Ref ID	Tariff Billing Activity	Relationship	File/Transaction	Electronic Transmittal Required?
1	Provide Tariff Billing Data	ISO to customer	Transmission Tariff File (TTF)	✓
2	Acknowledge Receipt and Validity of Transmission Tariff File	Customer to ISO	Transmission Tariff Accept Transaction (TTA)	✓
			Transmission Reject Transaction (TTR)	✓
3	Provide Transmission Tariff Reject Transaction Status	ISO to customer	Transmission Tariff Reject Notification Transaction (TTN)	✓
4	Dispute Transmission Tariff File Data	Customer to ISO	Transmission Tariff Dispute Transaction (TTD)	✓
5	Disclose Tariff Rate Code	ISO to Customer	Tariff Rate Code File (TRC)	Optional
6	Disclose Tariff Cross Reference Codes	ISO to customer	Tariff Cross Reference Code File (TRF)	Optional
7	Disclose Component Type Codes	ISO to customer	Component Type Code File (CTF)	Optional
8	Disclose Miscellaneous Determinant Description	ISO to customer	Miscellaneous Determinant Description File (MDF)	Optional
9	Disclose Other ISO Determinant Description	ISO to Customer	Other ISO Determinant Description File (ODF)	Optional

J3.2 Transmission Tariff File Structure

The transmission tariff file presents settlement point-specific tariff charges for a given period of time. The transmission tariff file information is presented in a hierarchical structure, which supports presentation of summary file, settlement point and tariff bill period information, as well as detailed tariff bill period determinants and charges. Further, the structure supports presentation of multiple tariff bill periods and associated records to segment charges within a settlement point's scheduled billing period. The transmission tariff file structure represented in Figure J3-1, for presentation purposes, is produced and transmitted as a .csv formatted file.

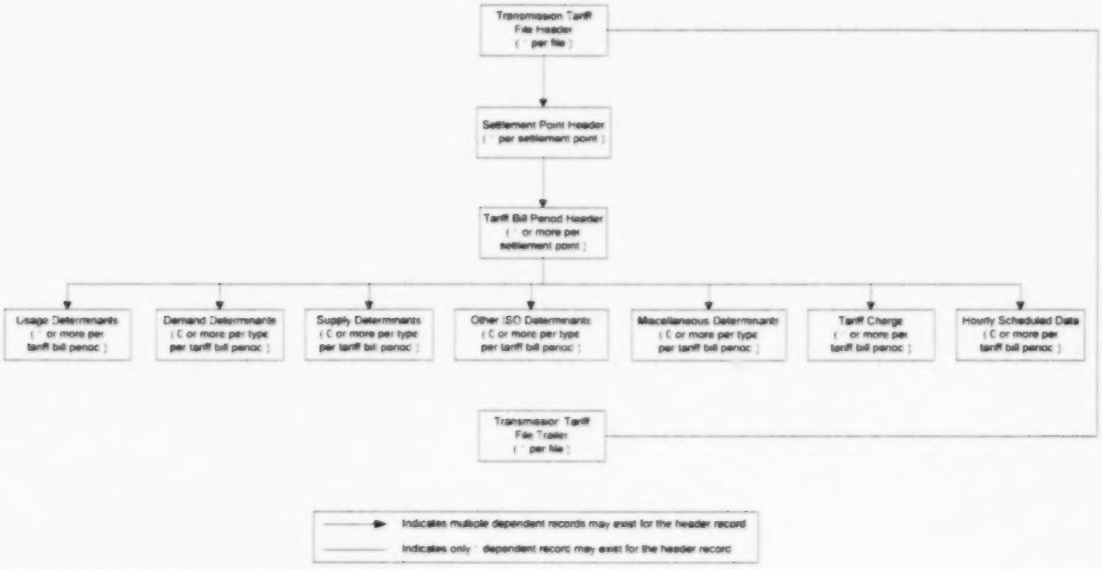

Transmission Tariff File Header (1 per file)
Settlement Point Header (1 per settlement point)
Tariff Bill Period Header (1 or more per settlement point)
Usage Determinants (1 or more per tariff bill period)
Demand Determinants (0 or more per type per tariff bill period)
Supply Determinants (0 or more per type per tariff bill period)
Other ISO Determinants (0 or more per type per tariff bill period)
Miscellaneous Determinants (0 or more per type per tariff bill period)
Tariff Charge (1 or more per tariff bill period)
Hourly Scheduled Data (0 or more per tariff bill period)
Transmission Tariff File Trailer (1 per file)
Indicates multiple dependent records may exist for the header record
Indicates only 1 dependent record may exist for the header record

Figure J3-1 Transmission Tariff File Structure

J3.3 Transmission Tariff File Content Rules

This section of the code provides the rules that the ISO is required to follow in the production of a transmission tariff file.

J3.3.1 General Transmission Tariff File Rules

The following general rules apply in the production of a transmission tariff file:

1) In calculating and presenting tariff charges, the ISO must limit its degree of precision to the stated degree of precision, or less, for that field in the transmission tariff file.
2) Where data fields are repeated throughout the file to link child records with their hierarchical parent, the field contents must match.

J3.3.2 Transmission Tariff File Header

The file header of a transmission tariff file contains summary information necessary to validate and track information contained within the transmission tariff file. The contents of the file header are provided in Table J3-2.

Table J3-2. Transmission Tariff File Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a transmission tariff file header record to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Must be populated with [null] for the transmission tariff file header.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This code must equal 'FH'.
4	Customer ID	Varchar(10)	MANDATORY FIELD – Unique identifier for a customer. This identifier must equal that of the intended customer receiving the transmission tariff file.
5	Sender ID	ISO ID format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the ISO sending the transmission tariff file and must adhere to the rules as defined in Schedule B of the SSC.
6	Commodity Code	Char(2)	MANDATORY FIELD – Standardized code representing commodity type. This value must equal 'EL'.
7	Date Created	Datetime format	MANDATORY FIELD – Datetime the transmission tariff file was created or last modified.
8	TTF Version	Char(1)	CONDITIONAL FIELD – Unique identifier for version of the transmission tariff file. If preliminary charges are being presented, this field must equal 'P'. If final charges are being presented, this file must equal 'F'.
9	Invoice ID	Varchar(20)	MANDATORY FIELD – Unique identifier for the customer invoice that this, and other, detail files reference.

Production Rules

The following production rules apply for the transmission tariff file header:

1) Data contained within the transmission tariff file header must adhere to the field level rules stated in Table J3-2.
2) A transmission tariff file must contain only one file header record.

J3.3.3 Settlement Point Header

The settlement point header of the transmission tariff file is the hierarchical child of the tariff file header and is the physical representation of a settlement point's current billing period. It contains general settlement point information, as well as settlement point summary information related to usage and tariff charges contained within a transmission tariff file. The contents of the settlement point header are provided in Table J3-3.

Table J3-3 Settlement Point Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a settlement point header record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent transmission tariff file header record. This must match the record ID presented in the transmission tariff file header record.
3	Record Type	Char(2)	MANDATORY – Code to indicate record type. Value must equal 'SH'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.

Element Sequence	Element (in sequence)	Data Type/Size	Description
5	Current Billing Period Start Date	Date format	CONDITIONAL FIELD – Start date (inclusive) of the current billing period. This must equal the earliest Tariff Bill Period Start Date for a settlement point (excluding cancel/rebills). Where tariff bill periods consisting of only cancel and/or rebill charges are presented for a settlement point, or in the absence of tariff bill periods for a settlement point, this field must be populated with [null].
6	Current Billing Period End Date	Date format	CONDITIONAL FIELD – End date (inclusive) of the current billing period. This must equal the latest Tariff Bill Period End Date for a settlement point (excluding cancel/rebills). Where tariff bill periods consisting of only cancel and/or rebill charges are presented for a settlement point, or in the absence of tariff bill periods for a settlement point, this field must be populated with [null].
7	Usage Total	Number(14,7)	CONDITIONAL FIELD – Usage check total for a settlement point. This must equal the sum of all 'Usage Amount' fields in a given transmission tariff file for a settlement point, including cancel/rebills. Positive and negative values are acceptable. If a settlement point has no usage determinant records = [null].
8	Usage UOM	Varchar(3)	MANDATORY FIELD – Unit of measure for usage. Must be populated with 'MWH'.
9	Charge Total	Number(11,2)	CONDITIONAL FIELD – Charge check total for a settlement point. This must equal the sum of all 'Charge Amount' fields in tariff charge records in a given transmission tariff file for a settlement point, including cancel/rebills. Positive and negative values are acceptable.
10	Additional Settlement Point Information	Varchar(50)	OPTIONAL FIELD – Free-form text field for providing additional settlement point information to a customer. (Disclosure of settlement point description.)
11	Settlement Point Production Reason Code	Number(5)	MANDATORY FIELD – Populate with a standard code representing the tariff billing event triggering the inclusion of the settlement point in the transmission tariff file. Refer to Section J6 for a list of acceptable values.
12	As-at Date	Datetime format	OPTIONAL FIELD – Populate with the latest transaction datetime for interval data used in the bill run for a settlement point.

Production Rules

The following production rules apply to the settlement point header:

1) Data contained within the settlement point header must adhere to the field level rules stated in Table J3-3.
2) A transmission tariff file must contain only one settlement point header per settlement point.
3) If the transmission tariff file is only presenting cancels and/or rebills for the settlement point, no current billing period applies.
4) A settlement point header is required in the case of a settlement point that has incurred no charges (i.e., tariff charges) for a scheduled billing period.
5) A settlement point header is not required if a settlement point has been withheld from transmission tariff file production due to failure of standard content validation tests or other internal production validation tests.

J3.3.4 Tariff Bill Period Header

The tariff bill period header of the transmission tariff file is the hierarchical child of the settlement point header and is the physical representation of a settlement point's tariff bill period. Each tariff bill period header represents a unique tariff bill period for a settlement point. It defines the tariff bill period and contains summary information pertaining to usage and tariff charges for that period. The contents of the tariff bill period header are provided in Table J3-4.

Table J3-4. Tariff Bill Period Header Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a tariff bill period header record produced by the ISO to allow customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent settlement point header record. This must match the record ID presented in the settlement point header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. Value must equal 'TH'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Tariff Bill Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the tariff bill period.
6	Tariff Bill Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the tariff bill period. This date cannot exceed the current billing period end date.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Tariff Bill Period Reference ID	Number(15)	CONDITIONAL FIELD – Record ID of a previous tariff bill period that is being cancelled. If Cancel Indicator = 'Y', this field is MANDATORY.
9	Cancel Reason Code	Number(5)	CONDITIONAL FIELD – Standardized code indicating a reason for sending a cancel. Refer to Section J6 for a list of acceptable values. If Cancel Indicator = 'Y', this field is MANDATORY.
10	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify the tariff rate applicable to the tariff bill period. The description of the code used in this field must match the ISO's published tariff rate code. Refer to Section J6 for further information.
11	Usage Total	Number(14,7)	MANDATORY FIELD – Usage check total for a tariff bill period. This must equal the sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period including cancel/rebills. Positive and negative values are acceptable.
12	Usage UOM	Varchar(3)	MANDATORY FIELD – Unit of measure for usage. Must be populated with 'MWH'.
13	Charge Total	Number(11,2)	CONDITIONAL FIELD – Total charges for a tariff bill period. This must equal the sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period. Positive and negative values are acceptable. If a tariff bill period has no charge records = 0

Production Rules

The following production rules apply to the tariff bill period header:

1) Data contained within the tariff bill period header must adhere to the field level rules stated in Table J3-4.
2) A transmission tariff file can contain multiple tariff bill period headers per settlement point.
3) Tariff periods identified as originals (i.e. cancel indicator = 'N') cannot overlap with other original tariff bill periods within the same, or a previous, transmission tariff file.
4) The tariff bill period end date must be equal to the effective date of a tariff billing event, as outlined in Table J2-1.
5) A tariff bill period header record is required, even if no tariff charges apply to a settlement point for that specific tariff bill period, to support the audit trail of potential cancel/rebills.

J3.3.5 Determinants – Usage

The usage determinant record of the transmission tariff file is a hierarchical child of the tariff bill period header and is the physical representation of the usage period. This record provides detailed usage for the tariff bill period. One or more usage determinant records must be provided for each tariff bill period provided. The contents of the usage determinant record are provided in Table J3-5.

Table J3-5. Usage Determinant Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a usage determinant record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. Value must equal 'DU'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Usage Period Start Date	Date format	MANDATORY FIELD – Full-day representation of the start date (inclusive) of a usage period bound by the tariff bill period.
6	Usage Period End Date	Date format	MANDATORY FIELD – Full-day representation of the end date (inclusive) of a usage period, bound by the tariff bill period
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Usage Amount	Number(14,7)	MANDATORY FIELD – Value representing the number of units consumed or produced.
9	Usage UOM	Varchar(3)	MANDATORY FIELD – Unit of measure for usage. Must be equal 'MWH'.

Production Rules

The following production rules apply to the usage determinant record:

1) Data contained within the usage determinant record must adhere to the field level rules stated in Table J3-5.
2) Usage periods identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original usage periods for the same or previous tariff bill periods.

J3.3.6 Determinant – Demand

The demand determinant record of the transmission tariff file is a hierarchical child of the tariff bill period header record and is the physical representation of the demand relevant to a tariff bill period. This record provides detailed demand information upon which tariff charges for the tariff bill period are determined and will only be present if the following conditions apply: Demand Transmission Service (DTS), Export Service (ES). The contents of the demand determinant record are provided in Table J3-6.

Table J3-6 Demand Determinant Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Record ID	Number (15)	MANDATORY FIELD – A unique reference ID for a demand determinant record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DD'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Demand Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the demand period, bound by the tariff bill period.
6	Demand Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the demand period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Demand Type Code	Number(5)	MANDATORY FIELD – Standardized code indicating the demand type. Refer to Section J6 for a list of acceptable values.
9	Demand Value	Number(13,7)	MANDATORY FIELD – Value indicating the demand as per the type.
10	Demand UOM	Varchar(5)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Section J6 for a list of acceptable values.
11	Ratchet Datetime	Datetime format	CONDITIONAL FIELD – Datetime ratchet value was established. The datetime in this field must occur prior to the transmission tariff file Date Created, but no earlier than the Demand Period End Date subtracting the Ratchet Period Months. If Demand Type Code = '14110 – Transmission Ratchet, this field is MANDATORY.
12	Ratchet Period Months	Number(2)	CONDITIONAL FIELD –The number of months that the ratchet is set for according to the ISO's published tariff. If Demand Type Code ='14110 – Transmission Ratchet, this field is MANDATORY.
13	Power Factor	Number(7,6)	CONDITIONAL FIELD – Power factor value as reported by the ISO. This value must reflect Power Factor application, where applicable. If a conversion is not required between Measured Demand UOM and Component Billed Quantity UOM or tariff charges do not depend on a power factor, Power Factor = [null].
14	Demand Contract End Date	Date format	CONDITIONAL FIELD – Contract end date as per ISO. If Demand Type = '14050 – Transmission Contract' and the contract is not an evergreen contract, this field must be populated with the contract end date, otherwise = [null].

Production Rules

The following production rules apply to the demand determinant record:

1) Data contained within the demand determinant record must adhere to the field level rules stated in Table J3-6.
2) All relevant demand determinants used in the derivation of the transmission billing demand determinant must be disclosed.
3) Demand records identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original demand records of the same demand type for the same tariff bill period.

4) Where demand determinants do not apply, this record will be absent from the tariff bill period.

J3.3.7 Determinant – Supply

The supply determinant record of the transmission tariff file is a hierarchical child of the tariff bill period header record and is the physical representation of the supply relevant to a tariff bill period. This record provides detailed supply information upon which tariff charges for the tariff bill period are determined and will only be present if the following conditions apply: Supply Transmission Service (STS) or Import Services (IS). The contents of the supply determinant record are provided in Table J3-7.

Table J3-7. Supply Determinant Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a supply determinant record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number 15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char (2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DS'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Supply Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the supply period, bound by the tariff bill period.
6	Supply Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the supply period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Supply Type Code	Number(5)	MANDATORY FIELD – Standardized code indicating the supply type. Refer to Section J6 for a list of acceptable values.
9	Supply Value	Number(13,7)	MANDATORY FIELD – Value indicating the supply as per the type.
10	Supply UOM	Varchar(5)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Section J6 for a list of acceptable values.
11	Supply Contract End Date	Date format	CONDITIONAL FIELD – Contract end date as per ISO. If Demand Type ='14050 – Transmission Contract' and the contract is not an evergreen contract, this field must be populated with the contract end date, otherwise = [null].

Production Rules

The following production rules apply to the supply determinant record:

1) Data contained within the supply determinant record must adhere to the field level rules stated in Table J3-7.

2) All relevant supply determinants used in the derivation of the transmission billing supply determinant must be disclosed.

3) Supply records identified as originals (i.e. cancel indicator = 'N') cannot overlap with other original supply records of the same type within the same tariff bill period.

4) Where supply records do not apply, this record will be absent from the transmission tariff file.

J3.3.8 Other ISO Determinant

The other ISO determinant record of the transmission tariff file is a hierarchical child of the tariff bill period header and is the physical representation of determinants exclusive of demand, usage, supply and miscellaneous, and relates to demand waivers and Demand Opportunity Service (DOS) contracts only. This record provides detailed determinant information upon which tariff charges for the tariff bill period can be based. The contents of the other ISO determinant record are provided in Table J3-8

Table J3-8 Other ISO Determinant Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for an other ISO determinant record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DO'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Other Determinant Period Start Date	Datetime Format	MANDATORY FIELD – Start datetime (inclusive) of the Other Determinant period, bound by the tariff bill period.
6	Other Determinant Period End Date	Datetime Format	MANDATORY FIELD – End datetime (inclusive) of the Other Determinant period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Other ISO Determinant Code	Varchar(4)	MANDATORY FIELD – Code indicating the other ISO determinant type. Refer to Section J6 for further information.
9	Unit Quantity	Number(12,7)	MANDATORY FIELD – Number of units used for determination of charges.
10	Unit Quantity UOM	Varchar(7)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Section J6 for a list of acceptable values.

Production Rules

The following production rules apply to the other ISO determinant record:

1) Data contained within the other ISO determinant record must adhere to the field level rules stated in Table J3-8.
2) A transmission tariff file can contain multiple other ISO determinant records per tariff bill period.
3) Where other ISO determinant records do not apply, this record will be absent from the transmission tariff file.

J3.3.9 Determinants – Miscellaneous

The miscellaneous determinant record of the transmission tariff file is a hierarchical child of the tariff bill period header and is the physical representation of determinants exclusive of demand and usage, such as rate riders, relevant to a tariff bill period. This record provides detailed determinant information upon which tariff charges for a tariff bill period can be based. The contents of the miscellaneous determinant record are provided in Table J3-9.

Table J3-9. Miscellaneous Determinant Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a miscellaneous determinant record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'DM'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Miscellaneous Determinant Period Start Date	Date Format	MANDATORY FIELD – Start date (inclusive) of the Miscellaneous Determinant period, bound by the tariff bill period.
6	Miscellaneous Determinant Period End Date	Date Format	MANDATORY FIELD – End date (inclusive) of the Miscellaneous Determinant period, bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Miscellaneous Determinant Code	Varchar(4)	MANDATORY FIELD – Code indicating the type of miscellaneous determinant. Refer to Section J6 for further information.
9	Unit Quantity	Number(12,7)	MANDATORY FIELD – Number of units used for determination of charges.
10	Unit Quantity UOM	Varchar(7)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Section J6 for a list of acceptable values.

Production Rules

The following production rules apply to the miscellaneous determinant record:

1) Data contained within the miscellaneous determinant record must adhere to the field level rules stated in Table J3-9.
2) A transmission tariff file can contain multiple miscellaneous determinant records per tariff bill period per settlement point.
3) Where miscellaneous determinant records do not apply, this record will be absent from the transmission tariff file.

J3.3.10 Tariff Charge

The tariff charge record of the transmission tariff file is a hierarchical child of the tariff bill period header and is the physical representation of the tariff charges that apply to the settlement point. This record provides detailed tariff charge information for a tariff bill period based on the determinants presented in the demand, supply, usage, miscellaneous and other ISO determinant records. The contents of the charge record are provided in Table J3-10.

Table J3-10. Tariff Charge Detail Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a charge record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period ID. This must match the record ID presented in the tariff bill period header record.

Element Sequence	Element (in sequence)	Data Type/Size	Description
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'CH'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Charge Period Start Date	Date format	MANDATORY FIELD – Start date (inclusive) of the applicable charge period bound by the tariff bill period.
6	Charge Period End Date	Date format	MANDATORY FIELD – End date (inclusive) of the applicable charge period bound by the tariff bill period.
7	Cancel Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating a cancelled record. Y=Yes; N=No.
8	Tariff Cross Reference Code	Varchar(9)	MANDATORY FIELD – Code to identify the tariff rate applicable to the tariff bill period. The rate code provided must match the ISO's published tariff rate code. Refer to Section J for further information.
9	Component Category Code	Number(5)	MANDATORY FIELD – Standardized code representing a charge category. Refer to Section J6 for a list of acceptable values.
10	Component Basis Code	Char(1)	MANDATORY FIELD – Standardized code to subdivide a charge category. Refer to Section J6 for a list of acceptable values.
11	Component Type Code	Varchar(4)	MANDATORY FIELD – Code representing a charge component type. Refer to Section J6 for further information.
12	Component Step Number	Number(3)	MANDATORY FIELD – Numeric value starting at 1 indicating the order in which charges are calculated. Default = 1 if the published tariff has only one charge component.
13	Component Billed Quantity	Number(15,6)	MANDATORY FIELD – Number of units used in determination of the charge step.
14	Component Billed Quantity UOM	Varchar(7)	MANDATORY FIELD – Standardized code representing the unit of measure. Refer to Section J6 for a list of acceptable values. If Component Billed Quantity value is the result of a calculation, UOM = 'CALC'. If Component Basis Code = 'D', the Component Billed Quantity UOM must equal a valid Demand UOM (refer to Table J6-5). If component Basis Code = 'E', the component Billed Quantity UOM must equal MWH. If Component Basis Code = 'S', the Component Billed Quantity UOM must equal a valid Supply UOM (refer to Table J6-7). If any other Component Basis Code is presented, the Component Billed Quantity UOM must equal a valid Unit Quantity UOM and Billed Quantity UOM (refer to Table J6-8).
15	Time Calculation Type	Char(1)	MANDATORY FIELD – A value indicating whether a particular charge is expressed as a daily, monthly, or period charge ('Period' means that the charge covers the entire charge period). D = Daily; M = Monthly; P = Period.
16	Time Factor	Number(9,6)	CONDITIONAL FIELD – Numeric value representing an amount of time for a charge. If Time Calculation Type = 'D', this value must be presented as an integer greater than or equal to 1. If Time Calculation Type = 'M', this value must be greater than 0. If Time Calculation Type = 'P', this value must be equal to 1.
17	Component Unit Price	Number(19,12)	MANDATORY FIELD – Numeric value representing the price for an individual unit of measure. This value must be consistent with the ISO's filed tariff and must be expressed in the equivalent dollar value.

Element Sequence	Element (in sequence)	Data Type/Size	Description
18	Charge Amount	Number(11,2)	MANDATORY FIELD – Numeric value representing the charge amount exclusive of GST. This value must equal Component Unit Price x Time Factor x Component Billed Quantity.
19	GST Exemption Indicator	Char(1)	MANDATORY FIELD – Y/N value indicating whether a particular charge item (not a customer) is GST exempt. Y=Yes; N=No.

Production Rules

The following production rules apply to the tariff charge record:

1) Data contained within the tariff charge record must adhere to the field level rules stated in Table J3-10.
2) A transmission tariff file can contain multiple charge periods per tariff bill period per settlement point.
3) Charge periods identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original charge periods of the same component charge (combination of tariff cross reference code, component category, component type code, and component step number) within the same tariff bill period.
4) The charge period will not contain any non-settlement point-specific charges (e.g., late payment interest, penalties, or charges not attributable to a settlement point).

J3.3.11 Hourly Scheduled Data

The hourly scheduled data record of the transmission tariff file is a hierarchical child of the tariff bill period header and is the physical representation of the scheduled energy that applies to a tariff bill period for a settlement point. This record provides detailed hourly scheduled and billed energy information for a tariff bill period and only applies to customers that have Import/Export services. The contents of the hourly scheduled data record are provided in Table J3-11.

Table J3-11 Hourly Scheduled Data Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for each hourly scheduled data record produced by the ISO to allow a customer to refer to the specific data record.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent tariff bill period record. This must match the record ID presented in the tariff bill period header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This value must equal 'SD'.
4	Settlement Point ID	Number(9)	MANDATORY – Unique identifier representing a settlement point in the market.
5	Scheduled Date	Date Format	MANDATORY – Date the energy was scheduled for transmission to the customer.
6	Scheduled Hour Ending	Char(2)	MANDATORY – A specific hour within the scheduled date. Must be a positive value between 01 and 25 (where 25 only applies to the end of Daylight Savings Time in October).
7	Scheduled Energy	Number(4)	MANDATORY – Value representing the amount of energy scheduled for transmission to the customer.
8	Scheduled Energy UOM	VarChar(3)	MANDATORY – Unit of measure for scheduled energy. This value must be equal to MWH.
9	Billed Energy	Number(6,2)	MANDATORY – Value representing the amount of energy billed to the customer.

Element Sequence	Element (In sequence)	Data Type/Size	Description
10	Billed Energy UOM	VarChar(3)	MANDATORY – Unit of measure for billed energy. This value must be equal to MWH.
11	Minimum Charge Indicator	Char(1)	MANDATORY – Y/N value indicating whether the billed energy is based on a minimum charge. Y = yes; N = No

Production Rules

The following production rules apply to the hourly scheduled data record:

1) Data contained within the hourly scheduled data record must adhere to the field level rules stated in Table J3-11.
2) A transmission tariff file may contain multiple hourly scheduled data records per tariff bill period only when Import/Export service is being provided by the ISO.
3) Hourly scheduled data records identified as originals (i.e., cancel indicator = 'N') cannot overlap with other original hourly scheduled data records of the same scheduled date and scheduled hour ending within the same tariff bill period.
4) Where hourly scheduled data records do not apply, this record will be absent from the transmission tariff file.

J3.3.12 Transmission Tariff File Trailer

The file trailer record of a transmission tariff file contains summary information necessary to validate information contained within the transmission tariff file. The contents of the file trailer are provided in Table J3-12.

Table J3-12. File Trailer Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Record ID	Number(15)	MANDATORY FIELD – A unique reference ID for a transmission tariff file trailer record produced by the ISO to allow a customer to refer to the specific data record. This value must be unique to the ISO.
2	Parent ID	Number(15)	MANDATORY FIELD – Unique reference ID for the parent transmission tariff file header record. This must match the record ID presented in the transmission tariff file header record.
3	Record Type	Char(2)	MANDATORY FIELD – Code to indicate record type. This code must equal 'FT'.
4	File Record Count	Number(9)	MANDATORY FIELD – Count of the number of records (including transmission tariff file header and trailer records) in the transmission tariff file.
5	Charge Total	Number(11,2)	MANDATORY FIELD – Sum of all 'Charge Amount' fields in tariff charge records within the transmission tariff file, including cancel/rebills. Positive and negative values are acceptable.

Production Rules

The following production rules apply for the file trailer record:

1) Data contained within the transmission tariff file trailer record must adhere to the field level rules stated in Table J3-12.

J3.4 Transmission Tariff Accept (TTA) Transaction

The TTA transaction enables a customer to inform the ISO of positive customer standard file format validation tests and customer acceptance of a transmission tariff file. If a TTA transaction is not sent from a customer to the ISO within the prescribed timeframe as stated in Table J1-1, the ISO may proceed with

issuing the customer a Statement of Account. The contents of the TTA transaction are provided in Table J3-13.

Table J3-13. Transmission Tariff Accept (TTA) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TTA'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for a TTA transaction. This identifier must be unique to a customer.
3	Customer ID	Varchar (10)	MANDATORY FIELD – Unique identifier for an ISO customer. This identifier must equal that of the customer sending the transaction.
4	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the ISO. This identifier must equal that of ISO, receiving the transaction (i.e., the Sender ID from File Header record of the applicable transmission tariff file) and must adhere to the rules as defined in Schedule B of the SSC.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TTA transaction was created.
6	Transmission Tariff File Header Record ID	Number(15)	MANDATORY FIELD - Unique reference ID for the transmission tariff file being accepted. This must match the record ID presented in the transmission tariff file header record of the transmission tariff file in question.

Production Rules

The following production rules apply for the TTA transaction:

1) Data contained within the TTA transaction must adhere to the field level rules stated in Table J3-13.
2) Customers must submit the TTA transaction within the timeframe prescribed in Table J1-1.

J3.5 Transmission Tariff Reject (TTR) Transaction

The TTR transaction enables a customer to inform the ISO of negative customer standard file format validation test results and ISO customer rejection of the transmission tariff file. If a TTR transaction is not sent from a customer to the ISO within the timeframe prescribed in Table J1-1, the ISO will proceed with issuing the customer a Statement of Account. The contents of the TTR transaction are provided in Table J3-14.

Table J3-14. Transmission Tariff Reject (TTR) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TTR'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for a TTR transaction. This identifier must be unique to an ISO customer.
3	Customer ID	Customer ID format	MANDATORY FIELD – Unique identifier for an ISO customer. This identifier must equal that of the customer sending the transaction.
4	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the recipient. This identifier must equal that of the ISO, receiving the transaction (i.e., the Sender ID from File Header record of the applicable transmission tariff file) and must adhere to the rules as defined in Schedule B of the SSC.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TTR transaction was created.
6	Transmission Tariff File Header Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the transmission tariff file being rejected. This must match the record ID presented in the transmission tariff file header record of the Transmission Tariff File in question.

Element Sequence	Element (In sequence)	Data Type/Size	Description
7	Transmission Tariff File Rejection Code	Number(5)	MANDATORY FIELD – Standardized code indicating the reason for rejecting a transmission tariff file. Refer to Section J6 for a list of acceptable values.
8	Record ID	Number (15)	CONDITIONAL – Record ID of the first record within the transmission tariff file that has failed a file format validation. This field should be populated with the Record ID of the record in violation of a file format validation, except in the case of Reference IDs 1 and 2 in the file format validation tests.

Production Rules

The following production rules apply for the TTR transaction:

1) Data contained within the TTR transaction must adhere to the field level rules stated in Table J3-14
2) Customers must submit a TTR transaction within the timeframe prescribed in Table J1-1.

J3.6 Transmission Tariff Reject Notification (TTN) Transaction

The TTN transaction enables the ISO to inform a customer of the status of a TTR transaction. It is mandatory for the ISO to send this transaction to a customer if a TTR transaction has been received from the customer. The contents of the TTN transaction are provided in Table J3-15.

Table J3-15. Tariff Bill Rejection Notification (TTN) Transaction Content

Element Sequence	Element (In sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TTN'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the TTN transaction. This identifier must be unique to the ISO.
3	Sender ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the ISO sending the transaction and must adhere to the rules as defined in Schedule B of the SSC.
4	Customer ID	Varchar (10)	MANDATORY FIELD – Unique identifier for an ISO customer. This identifier must equal that of the intended customer receiving the transaction.
5	Date Created	Datetime	MANDATORY FIELD – Datetime the TTN transaction was created.
6	Transaction Reference ID	Number(15)	MANDATORY FIELD – Unique reference ID of the original TTR transaction. This value must equal the transaction ID of the TTR transaction being referenced.
7	Transmission Tariff file Header Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the transmission tariff file being accepted or rejected. This must match the record ID presented in the transmission tariff file header record of the transmission tariff file in question.
8	Reject Notification Status Code	Char(1)	MANDATORY FIELD – Code representing the status of the referenced TTR transaction. If the ISO accepts the TTR transaction = 'A', otherwise = 'R'.

Production Rules

The following production rules apply for the TTN transaction:

1) Data contained within the TTN transaction must adhere to the field level rules stated in Table J3-15.
2) The ISO must submit a TTN transaction within the timeframe prescribed in Table J1-1.

J3.7 Transmission Tariff Dispute (TTD)

The TTD transaction enables a customer to dispute tariff billing information delivered by the ISO in a transmission tariff file at the tariff bill period level. This transaction is utilized by a customer to inform the ISO of standard file content validation test failures. The ISO is not obligated to build automated functionality to process this transaction and resolve customer disputes. The contents of the TTD transaction are provided in Table J3-16.

Table J3-16. Tariff Billing Dispute (TTD) Transaction Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	Transaction Abbreviation	Char(3)	MANDATORY FIELD – Transaction abbreviation. This code must equal 'TTD'.
2	Transaction ID	Number(15)	MANDATORY FIELD – Unique identifier for the TTD transaction. This identifier must be unique to an ISO customer.
3	Customer ID	Varchar (10)	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the customer sending the transaction.
4	ISO ID	ISO ID format	MANDATORY FIELD – Unique identifier for the ISO. This identifier must equal that of the ISO, receiving the transaction (i.e., the Sender ID from File Header record of the applicable transmission tariff file) and must adhere to the rules as defined in Schedule B of the SSC.
5	Date Created	Datetime format	MANDATORY FIELD – Datetime the TTD transaction was created.
6	Transmission Tariff File Header Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the transmission tariff file in which records are being disputed. This must match the record ID presented in the transmission tariff file header record of the transmission tariff file in question.
7	Settlement Point ID	Number (9)	MANDATORY FIELD – Unique reference ID for the settlement point for which disputed records apply.
8	Tariff Bill Period Record ID	Number(15)	MANDATORY FIELD – Unique reference ID for the tariff bill period being disputed. This must equal the record ID of the tariff bill period header record being disputed.
9	Record ID	Number(15)	OPTIONAL FIELD – Record ID of the related tariff bill period child record in error.
10	Transmission Tariff File Dispute Code	Number(5)	MANDATORY FIELD – Standard code representing the reason for the dispute. See Section J6 for a list of acceptable values.

Production Rules

The following production rules apply for the TTD transaction:

1) Data contained within the TTD transaction must adhere to the field level rules stated in Table J3-16.
2) The dispute code must be reported at the record level of a transmission tariff file.
3) A TBD transaction must be created for each tariff bill period header record or one-time charge record found to be in error.

J4 Validation and Exception Handling

This section of the code defines validation rules, validation outputs, exception handling procedures, and cancel/rebill procedures for the transmission tariff file and associated transactions.

J4.1 Transmission Tariff File Validation and Notification

As prescribed in Section J1.7, the ISO is obligated to validate transmission tariff files according to standard file format and file content validation tests prior to transmission to customers. ISO customers, at their discretion, shall perform the validation and notification steps in accordance with the rules described in this section upon receipt of a transmission tariff file. The ISO and ISO customers shall maintain adequate records to explain all validation failures.

ISO release or withholding, in whole or in part of a transmission tariff file and ISO customer acceptance, rejection, or partial acceptance of a transmission tariff file will be based on the results of the following validation tests:

1) File Format – Failure of any one of these validations will result in the rejection of the transmission tariff file:
   a) Validate the format of the physical attributes of the transmission tariff file, including field attributes (i.e., data type and size) and transmission tariff file record structure.
   b) Validate the content of the data as contained within the file in conjunction with billing history the ISO customer of record has compiled relating to the settlement point, including mandatory and conditional field checks, file integrity checks (i.e., record counts and check totals), expected field values, cross field edits (e.g., conditional field population, gaps/overlaps for transmission periods contained within the file, and expected record types), and settlement point billing continuity (i.e., cancel/rebill integrity.)
2) File Content – Failure of any one of the validations will result in the dispute of the transmission tariff file.
   a) Validate the content of a transmission tariff file in conjunction with other data the ISO customer of record has compiled relating to the settlement point.

J4.1.1 Standard File Format Validation Tests

ISO customers shall be restricted to performing only the procedures outlined in Table J4-1 to accept or reject a transmission tariff file. Failure of at least one of these validation test procedures will result in transmission tariff file rejection utilizing the TBR transaction described in Section 4.5.

For the purpose of these validation tests, the term "expected" means the value contained in the field must be valid as per field level definitions in Section 4.3.

Table J4-1. Standard File Format Validation and Notification Tests

Table Ref ID	Check	Test	Description	Outcome
1	File Naming Convention	Compare Transmission Tariff File Name with expected Transmission Tariff File Name	Transmission Tariff File Name must match Transmission tariff File Name format	Pass: Transmission Tariff File Name = defined Transmission Tariff File Name format Fail: Transmission Tariff File Name ≠ defined Transmission Tariff File Name format

Table Ref ID	Check	Test	Description	Outcome
2	File Format	Compare file format with expected file format	Transmission Tariff File format must match Transmission tariff File format	Pass: Transmission Tariff File format = defined Transmission tariff File format Fail: Transmission tariff File format ≠ defined Transmission tariff File format
3	Data Type	Compare data type with expected data type	Field-level data types must match field-level data types	Pass: Field-level data types = defined field-level data types Fail: Field-level data types ≠ defined field-level data types
4	Record Production Sequence	Compare published record production sequence with expected record production sequence	Transmission tariff file records must be presented in the correct order according to the prescribed rules (i.e., Transmission Tariff File Header, Settlement Point Header, Tariff Bill Period Header, Usage Determinant, Demand Determinant, Supply Determinant, Other ISO Determinant, Miscellaneous Determinant, Tariff Charge, Transmission Tariff File Trailer)	Pass: Record production sequence = expected record production sequence Fail: Record production sequence ≠ expected record production sequence.
5	Mandatory Field Logic	Compare Transmission Tariff File mandatory fields with expected Transmission Tariff File mandatory fields	Mandatory fields must be populated according to prescribed rules	Pass: All mandatory fields are populated Fail: One or more mandatory fields are not populated
6	Conditional Field Logic	Compare Transmission Tariff File conditional fields with expected Transmission Tariff File conditional fields	Conditional fields must be populated according to declared rules (sequencing triggers) The following record elements are exempt from this test, Power Factor	Pass: All conditional fields are populated according to conditional field rules Fail: One or more conditional fields are not populated according to conditional field rules
7	Standard Codes	Compare codes with expected Standard Codes	Fields requiring standard code population must contain values that match standard codes	Pass: Code value within standard code list Fail: Code value not within standard code list
8	Unique File Header Record ID (with previous Transmission tariff Files)[16]	Compare File Header Record ID with File Header Record IDs reported in previous Transmission Tariff Files	Record ID in the Transmission Tariff File Header must be unique to the ISO.	Pass: File Header Record ID is unique to the ISO Fail: File Header Record ID is not unique to the ISO
9	Unique Record ID (within Transmission tariff File)	Compare Record ID with other Record IDs reported in the Transmission Tariff File	All Record IDs, except Demand Determinant and Miscellaneous Determinant Record IDs, must be unique within a Transmission Tariff File[17]	Pass: Record ID is unique within the Transmission Tariff File Fail: Record ID is not unique within the Transmission Tariff File
10	Parent ID	Compare Parent ID with expected Parent ID	Parent ID at any level within the Transmission Tariff File structure must match the Record ID of the parent record	Pass: Parent ID = expected Parent ID Fail: Parent ID ≠ expected Parent ID

[16] This is an intended deviation from file format validation principles of evaluating content within a file.

[17] If demand, miscellaneous determinant, or other ISO determinant records remain unchanged from file to file or are stated in more than one tariff bill period for a site within a tariff bill file, the ISO may use the same record ID to disclose that determinant, but period start and end dates must be relevant to the parent Tariff Bill Period.

Table Ref ID	Check	Test	Description	Outcome
11	Customer ID	Compare Customer ID with expected Customer ID	Customer ID must match Customer ID of the intended recipient	Pass: Customer ID= expected Customer ID Fail: Customer ID ≠ expected Customer ID
12	ISO ID	Compare ISO ID with expected ISO ID	ISO ID must match ISO ID of the sender	Pass: ISO ID = expected ISO ID Fail: ISO ID≠ expected ISO ID
13	Date Created	Compare Date Created with date of receipt	Date Created must be less than or equal to the date of receipt	Pass: Date Created is ≤ the date of receipt Fail: Date Created is > the date of receipt
14	Date Logic	Compare Logical To and From Dates	All Period date ranges within a Transmission Tariff File must report the End Date as greater than or equal to the Start Date	Pass: Period End Date ≥ Period Start Date. Fail: Period End Date < Period Start Date
15	Future Dates	Compare date values to Transmission Tariff File Header Date Created	All date values within a Transmission Tariff File must be equal to or less than the Transmission Tariff File Header Date Created	Pass: Date values ≤ Date Created Fail: Date values > Date Created
16	Current Billing Period / Tariff Bill Period Alignment	Compare Current Billing Period declared within Settlement Point - Header to Tariff Bill Periods	The Current Billing Period Start Date and the Current Billing Period End Date must equal the earliest Tariff Bill Period Start Date and the latest Tariff Bill Period End Date, respectively, for a settlement point (excluding cancel/rebills)	Pass: Current Billing Period Start Date ≥ MIN Tariff Bill Period Start Date, and, Current Billing Period End Date = MAX Tariff Bill Period End Date Fail: Current Billing Period Start Date < MIN Tariff Bill Period Start Date, and/or Current Billing Period End Date ≠ MAX Tariff Bill Period End Date
17	Cancel Indicator Logic	Compare Cancel Indicator of Tariff Bill Period child records with Cancel Indicator of Tariff Bill Period	All Tariff Bill Period child records must have the same Cancel Indicator value as the parent Tariff Bill Period	Pass: Tariff Bill Period child records Cancel Indicator = Tariff Bill Period Cancel Indicator Fail: Tariff Bill Period child records Cancel Indicator ≠ Tariff Bill Period Cancel Indicator
18	Tariff Bill Period Overlap (within a Transmission Tariff File)	Compare Tariff Bill Periods with other Tariff Bill Periods within a Transmission Tariff File (excluding cancel/rebills)	Tariff Bill Periods for current period charges may not overlap. The Tariff Bill Period Start Date must be greater than the preceding Tariff Bill Period End Date (within a Transmission Tariff File for the same settlement point excluding cancel/rebills)	Pass: Tariff Bill Period Start Date > Tariff Bill Period End Date of previous Tariff Bill Period record (excluding cancel/rebills) Fail: Tariff Bill Period Start Date ≤ Tariff Bill Period End Date of previous Tariff Bill Period record (excluding cancel/rebills)
19	Tariff Bill Period Gap (within the Current Billing Period)	Compare Tariff Bill Periods within the current billing period	Tariff Bill Periods for the same settlement point within the Current Billing Period must be continuous within the transmission tariff File	Pass: Tariff Period Start Date = the previous Tariff Bill Period record's End Date plus one day or = Current Billing Period Start Date Fail: Tariff Period Start Date ≠ the previous Tariff Bill Period record's End Date plus one day or ≠ Current Billing Period Start Date

Table Ref ID	Check	Test	Description	Outcome
20	Usage Period / Tariff Bill Period Alignment	Compare Usage Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date must equal the earliest Usage Period Start Date and the Tariff Bill Period End Date must equal the latest Usage Period End Date within a Tariff Bill Period.	Pass: Tariff Bill Period Start Date = MIN Usage Period Start Date, and Tariff Bill Period End Date = MAX Usage Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Usage Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Usage Period End Date
21	Usage Period Overlap (within a Tariff Bill Period)	Compare Usage Periods within a Tariff Bill Period	Usage Periods within a Tariff Bill Period may not overlap. The Usage Period Start Date must be greater than the preceding Usage Period End Date	Pass: Usage Period Start Date > the previous Usage Period record's End Date Fail: Usage Period Start Date ≤ Usage Period End Date of the previous Usage Period record
22	Usage Period Gap (within a Tariff Bill Period)	Compare Usage Periods within a Tariff Bill Period	Usage Periods within a Tariff Bill Period must be continuous; the Usage Period Start Date must be one day greater than the preceding Usage Period record's End Date	Pass: Usage Period Start Date = the previous Usage Period record's End Date plus one day Fail: Usage Period Start Date > the previous Usage Period record's End Date plus one day
23	Demand Period / Tariff Bill Period Alignment	Compare Demand Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date and the Tariff Bill Period End Date must equal the earliest Demand Period Start Date and the latest Demand Period End Date, respectively, of demand determinant records (where applicable) within that Tariff Bill Period having a demand type code of 'Transmission Billing'	Pass: Tariff Bill Period Start Date = MIN Demand Period Start Date, and Tariff Bill Period End Date = MAX Demand Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Demand Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Demand Period End Date
24	Demand Period Overlap (within a Tariff Bill Period)	Compare Demand Periods within a Tariff Bill Period	Demand Periods for the same Demand Type and Demand UOM within a Tariff Bill Period may not overlap; the Demand Period Start Date must be greater than the preceding Demand Period End Date	Pass: Demand Period Start Date > the previous Demand Period record's End Date Fail: Demand Period Start Date ≤ Demand Period End Date of the previous Demand Period record
25	Demand Period Gap (within a Tariff Bill Period)	Compare Demand Periods within a Tariff Bill Period	Demand Periods for the same Demand Type and Demand UOM within a Tariff Bill Period must be continuous; the Demand Period Start Date must be one day greater than the preceding Demand Period record's End Date	Pass: Demand Period Start Date = the previous Demand Period End Date plus one day Fail: Demand Period Start Date > the previous Demand Period End Date plus one day
26	Supply Period / Tariff Bill Period Alignment	Compare Supply Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date and the Tariff Bill Period End Date must equal the earliest Supply Period Start Date and the latest Supply Period End Date, respectively, of supply determinant records (where applicable) within that Tariff Bill Period having a supply type code of 'Transmission Billing'	Pass: Tariff Bill Period Start Date = MIN Supply Period Start Date, and Tariff Bill Period End Date = MAX Supply Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Supply Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Supply Period End Date
27	Supply Period Overlap (within a Tariff Bill Period)	Compare Supply Periods within a Tariff Bill Period	Supply Periods for the same Supply Type and Supply UOM within a Tariff Bill Period may not overlap; the Supply Period Start Date must be greater than the preceding Supply Period End Date	Pass: Supply Period Start Date > the previous Supply Period End Date Fail: Supply Period Start Date ≤ Supply Period End Date of the previous Supply Period
28	Supply Period Gap (within a Tariff Bill Period)	Compare Supply Periods within a Tariff Bill Period	Supply Periods for the same Supply Type and Supply UOM within a Tariff Bill Period must be continuous; the Supply Period Start Date must be one day greater than the preceding Supply Period End Date	Pass: Supply Period Start Date = the previous Supply Period record's End Date plus one day Fail: Supply Period Start Date > the previous Supply Period End Date plus one day

Table Ref ID	Check	Test	Description	Outcome
29	Charge Period / Tariff Bill Period Alignment	Compare Charge Period(s) with Tariff Bill Period	The Tariff Bill Period Start Date must equal the earliest Charge Period Start Date and the Tariff Bill Period End Date must equal the latest Charge Period End Date within a Tariff Bill Period	Pass: Tariff Bill Period Start Date = MIN Charge Period Start Date, and Tariff Bill Period End Date = MAX Charge Period End Date Fail: Tariff Bill Period Start Date ≠ MIN Charge Period Start Date, and/or Tariff Bill Period End Date ≠ MAX Charge Period End Date
30	Charge Period Overlap (within a Tariff Bill Period)	Compare Charge Periods within a Tariff Bill Period	Charge periods for a single component charge (combination of tariff cross-reference code, component category code, component type code, component basis code and step number) within a Tariff Bill Period may not overlap (except where the tariff cross-reference code equals DOS, UFS, EOS and IOS); the Charge Period Start Date must be greater than the preceding Charge Period End Date	Pass: Charge Period Start Date > the previous Charge Period End Date Fail: Charge Period Start Date ≤ the previous Charge Period End Date
31	Charge Period Gap (within a Tariff Bill Period)	Compare Charge Periods within a Tariff Bill Period	Charge Periods for a single component charge (combination of tariff cross-reference code, component category code, component type code, component basis code and step number), having a component basis code of 'D' , 'E' or 'S' within a Tariff Bill Period, must be continuous (except where a tariff cross-reference code equals DOS); the Charge Period Start Date must be one day greater than the preceding Charge Period End Date	Pass: Charge Period Start Date = the previous Charge Period End Date plus one day Fail: Charge Period Start Date > the previous Charge Period End Date plus one day
32	Settlement Point Header Usage Total	Compare Settlement Point Header Usage Total with expected Settlement Point Header Usage Total	Settlement Point Header Usage Total must match total of all of the settlement point's usage in the file (including cancel/rebills)	Pass: Settlement Point Header Usage Total = sum of all 'Usage Amount' fields in the transmission tariff file for a Settlement Point (including cancel/rebills) Fail: Settlement Point Header Usage Total ≠ sum of all 'Usage Amount' fields in the transmission tariff file for a Settlement Point (including cancel/rebills)
33	Settlement Point Header Charge Total	Compare Settlement Point Header Charge Total with expected Settlement Point Header Charge Total	Settlement Point Header Charge Total must equal the sum of all of the Charge Amount fields in the file (including cancel/rebills) for a settlement point.	Pass: Settlement Point Header Charge Total = sum of all 'Charge Amount' fields in the transmission tariff file for a Settlement Point (including cancel/rebills) Fail: Settlement Point Header Charge Total ≠ sum of all 'Charge Amount" fields in the transmission tariff file for a Settlement Point (including cancel/rebills)
34	Tariff Bill Period Header Usage Total	Compare Tariff Bill Period Header Usage Total with expected Tariff Bill Period Header Usage Total	Tariff Bill Period Header Usage Total must equal the sum of all 'Usage Amount' fields within a tariff bill period	Pass: Tariff Bill Period Header Usage Total = sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period Fail: Tariff Bill Period Header Usage Total ≠ sum of all 'Usage Amount' fields in usage determinant records for a tariff bill period

Table Ref ID	Check	Test	Description	Outcome
35	Tariff Bill Period Header Charge Total	Compare Tariff Bill Period Header Charge Total with expected Tariff Bill Period Header Charge Total	Tariff Bill Period Header Charge Total must equal the sum of all 'Charge Amount' fields within the tariff bill period	Pass: Tariff Bill Period Header Charge Total = sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period Fail: Tariff Bill Period Header Charge Total ≠ sum of all 'Charge Amount' fields in tariff charge records for a tariff bill period
36	File Trailer File Record Count	Compare File Record Count with expected File Record Count	File Record Count must match the number of records in the transmission tariff file	Pass: File Record Count = number of records in the transmission tariff file Fail: File Record Count ≠ number of records in the transmission tariff file
37	File Trailer Charge Total	Compare File Trailer Charge Total with expected File Trailer Charge Total	File Trailer Charge Total must equal the sum of all 'Charge Amount' fields in the transmission tariff file (including cancel/rebills)	Pass: File Trailer Charge Total = sum of all 'Charge Amount' fields in tariff charge records within the transmission tariff file (including cancel/rebills) Fail: File Trailer Charge Total ≠ sum of all 'Charge Amount' fields in tariff charge records within the transmission tariff file (including cancel/rebills)
38	Billing Demand Determinant Requirement	Check for the existence of a, 'Transmission Billing' demand determinant where tariff charge records are based on Demand	If tariff charge records report Component Basis Code of Demand, 'Transmission Billing' demand determinant records must also be disclosed within the same tariff bill period	Pass: 'Transmission Billing' demand determinant records present where Tariff charge records report Component Basis Code = 'D' Fail: 'Transmission Billing' demand determinant records not present where Tariff charge records report Component Basis Code = 'D'
39	Usage Determinant Requirement	Check for the existence of a usage determinant record within each tariff bill period	A usage determinant records must be present for each tariff bill period	Pass: Usage determinant record exists to support each tariff bill period Fail: Usage determinant record does not exist to support each tariff bill period
40	Calculated Values	Check calculated values with expected value	Calculated field values based on a calculation involving one or more fields in the Transmission Tariff File must match the expected calculated value (i.e., Charge Amount = Component Unit Price x Time Factor x Component Billed Quantity)	Pass: Calculated field value = expected calculated value Fail: Calculated field value ≠ expected calculated value
41	Child Record Values	Check child record value with parent record value	Where the same field name exists in parent and child records within the transmission tariff File, child record field values must match the field values of the parent record (e.g., Settlement Point ID in the Tariff Bill Period Header must match the Settlement Point ID in the Settlement Point Header; likewise, the Settlement Point ID in the Usage Determinant, Demand Determinant, Supply determinant, Other ISO Determinant, Miscellaneous Determinant, Tariff Charge, and Hourly Scheduled Data records must match the Settlement Point ID in the Tariff Bill Period Header record)	Pass: Child record field value = Parent record field value Fail: Child record field value ≠ Parent record field value

J4.1.2 Standard File Content Validation Tests

ISO customers shall be restricted to performing only the procedures outlined in Table J4-2 to dispute transmission tariff file content. Failure of at least one of these validation test procedures will result in a transmission tariff file dispute utilizing the TBD transaction described in Section 4.7. These disputes will not affect the ISO's payment terms with the ISO customer and may not be used as justification for nonpayment of an ISO invoice. The ISO is not required to respond to these disputes in an automated fashion.

For the purpose of these validation tests, the term "expected" means the value contained in the field must be valid as per field level definitions in Section 4.3.

Table J4-2. Standard File Content Validation Tests

Table Ref ID	Check	Test	Description	Outcome
1	Unique Record ID (with previous transmission tariff files	Compare Record ID with existing Record IDs reported in previous Transmission Tariff Files	All Record IDs, except Demand Determinant and Miscellaneous Determinant Record IDs, must be unique to the ISO[18]	Pass: Record ID is unique for the ISO Fail: Record ID is not unique for the ISO
2	Tariff Bill Period Overlap (with previous Transmission Tariff Files)	Compare Tariff Bill Periods with previously sent Transmission Tariff File Tariff Bill Periods	Tariff Bill Periods within Transmission Tariff File may not overlap with any Tariff Bill Period previously sent and not cancelled	Pass: Tariff Bill Period within a Transmission Tariff File does not overlap with a previously sent Tariff Bill Period that is not cancelled Fail: Tariff Bill Period within a Transmission tariff File overlaps with a previously sent Tariff Bill Period that is not cancelled
3	Tariff Bill Period Gap (with previous Transmission Tariff Files)	Compare Tariff Periods with other transmission tariff File Tariff Bill Periods	Tariff Bill Periods must be continuous	Pass: Tariff Bill Periods are continuous Fail: Tariff Bill Periods are not continuous
4	Cancel Cross-Reference Logic	Compare contents of the Tariff Bill Period Reference ID with expected results	A Tariff Header record flagged with Cancel Indicator = Y must report a valid previous Tariff Bill Period Record ID	Pass: Tariff Bill Period Reference ID = a valid previous Tariff Bill Period Record ID Fail: Tariff Bill Period Reference ID ≠ a valid previous Tariff Bill Period Record ID
5	Cancel Value Logic	Compare Transmission Tariff File records with Cancel Indicator = Y with the value of Transmission Tariff File records being cancelled	Transmission Tariff File records flagged with Cancel Indicator = Y must match the value of records in a previously sent transmission tariff file that are being cancelled, with amount fields being reverse in sign	Pass: Values of transmission tariff File records flagged with Cancel Indicator = Y = values of records being cancelled Fail: Values of records flagged with Cancel Indicator = Y ≠ values of records being cancelled
6	Current Billing Period Cancel Logic	Check for the existence of cancelled records within the current billing period date range.	All cancelled records must be presented in the timeframe preceding the current billing period.	Pass: Cancelled records do not exist within the current billing period date range. Fail: Cancelled records exist within the current billing period date range.

[18] If demand or miscellaneous determinant records remain unchanged from file to file or are stated in more than one tariff bill period for a site within a tariff bill file, the ISO may use the same record ID to disclose those determinants, but period start and end dates must be relevant to the parent Tariff Bill Period.

Table Ref ID	Check	Test	Description	Outcome
7	Invalid Usage Value	Check usage presented in Transmission Tariff File with customer provided usage.	Usage presented in a Transmission Tariff File for a settlement point must match usage provided to the ISO by a customer for that settlement point.	Pass: Usage = customer provided usage Fail: Usage ≠ customer provided usage

J4.1.3 Other Transmission Tariff File Validation Tests

The ISO is required to perform other validation tests on the transmission tariff file according to their internal processes or business rules to confirm reasonableness of usage and/or tariff charges. Failure of these other validation tests justifies withholding presentation of a settlement point and its associated charges from a transmission tariff file.

Customers may at their discretion perform other validation tests on the transmission tariff file according to their internal process or business rules; however, results from such validation tests are not supported by the dispute mechanism defined in this code. Follow-up with the ISO relating to other validation test failures must be performed manually.

J4.2 Exception Handling

This section of the code provides direction for responding to reported exceptions.

J4.2.1 Transmission Tariff Reject (TTR) Transaction

Upon receipt of a TTR transaction, the ISO will validate the reject notification and either

1) Send a TTN transaction advising the customer that the rejection of a specific transmission tariff file was invalid, in which case the ISO would proceed with invoicing, or
2) Send a TTN transaction advising the customer that the rejection of a specific transmission tariff file was valid, in which case the ISO would correct the transmission tariff file and resubmit the transmission tariff file. The ISO would also delay invoicing until a valid TTA transaction was received from the customer.

In all of the above circumstances, the ISO may employ a manual or automated process consistent with its standing operating practices.

J4.2.2 Transmission Tariff Dispute (TTD)

Upon receipt of a TTD transaction, the ISO will either

1) Advise the customer, with a supporting explanation, that the dispute is invalid, or
2) Correct the reported file content error(s) according to the cancel/rebill processing rules.

In all of the above circumstances, the ISO may employ a manual or automated process consistent with its current operating practices. However, provision of cancel/rebill information must be presented according to the format and production rules of the transmission tariff file.

J4.3 Cancel/Rebill

A 'cancel' or 'cancel and rebill' of previously issued transmission tariff file records for a specific settlement point may be required to

1) Resolve accepted customer disputes of original or rebilled charges;
2) Resolve ISO-initiated corrections.

J4.3.1 General Cancel/Rebill Production Rules

1) Where possible, the ISO must attempt to send the tariff bill period rebill records in the same transmission tariff file as the associated cancel records. Exceptions for prior period adjustments should be rare.
2) Original or rebilled charges presented within a transmission tariff file cannot be cancelled within the same transmission tariff file (i.e., no redundant charge and cancel presentation).
3) All cancel/rebills processed by the ISO must be sent to customers as part of a transmission tariff file according to the record production sequence outlined in this schedule.

J4.3.2 Tariff Charge Cancel/Rebill Production Rules

Cancelled tariff period charges must

1) Be presented according to tariff bill period, meaning that the tariff bill period header record and its associated child records (i.e., usage determinants, demand determinants, supply determinants, miscellaneous determinants, other ISO determinants, tariff charges, and hourly scheduled data) must be included as part of the cancel;
2) Have a new tariff bill period ID assigned;
3) Have the cancel indicator of the tariff bill period header record and its associated child records set to Y;
4) Match the content of the original transmission tariff file's tariff bill period header values with the exception of the following fields: Record ID, Parent ID, Tariff Bill Period Reference ID, Cancel Indicator, and Cancel Reason Code;
5) Provide a cross-reference to the original tariff bill period Record ID being cancelled utilizing the Tariff Bill Period Reference ID field in the tariff bill period header record;
6) Populate a reason code as an explanation for the cancellation utilizing the Cancel Reason Code field of the tariff bill period header record;
7) Match the determinant and charge values of the original tariff bill period child records;
8) Apply a sign reversal to the following field values, when applicable:
    a. Tariff Bill Period Header Record – Usage Total
    b. Tariff Bill Period Header Record – Charge Total
    c. Demand Determinant Record – Demand Value
    d. Usage Determinant Record – Usage Amount
    e. Supply Determinant Record – Supply Value
    f. Other ISO Determinants – Unit Quantity
    g. Miscellaneous Determinant – Unit Quantity
    h. Tariff Charge Record – Component Billed Quantity
    i. Tariff Charge Record – Charge Amount
    j. Hourly Schedule Data – Scheduled Energy
9) Be presented on an on-cycle basis for disputes relating to the most recently billed period, or prior period.

Rebilled tariff periods charges must

1) Be presented according to tariff bill period, meaning that the tariff bill period header record and its associated child records (i.e., usage determinants, demand determinants, supply determinants, miscellaneous determinants, other ISO determinants, tariff charges, and hourly scheduled data) must be included as part of the rebill;
2) Have a new tariff bill period ID assigned;

3) Follow the standard production rules for new tariff charge presentation—this means that tariff bill events apply equally to rebilled charges and to original charges; and
4) Be presented on-cycle for tariff charges for customer disputes relating to the most recently billed period or prior periods.

J4.3.3 Responses to Valid Customer Disputes

In response to a valid customer dispute with respect to a specific settlement point, the ISO must adjust tariff charges according to the procedures outlined in this section of the code. A valid dispute is based upon failure of at least one of the standard file content validation tests documented in this code.

Following receipt and confirmation of a TTD transaction identifying at least one transmission tariff file content dispute, the ISO must

1) Cancel the applicable disputed tariff charges to the customer who initiated the dispute;
2) Rebill the applicable tariff charges to the customer initiating the dispute, a different customer, or both; and
3) If a valid dispute is acknowledged but a correction is not yet known, a cancel must be presented at the same time as the rebill. If only a cancel is required, the cancel must be sent as part of the next transmission tariff file.

J4.3.4 ISO Initiated Correction

In situations where the ISO initiates a restatement of tariff charges (i.e., reversal and/or reapplication of tariff charges for an entire rate class), the ISO is obligated with all due diligence to provide advance or concurrent notice of the change to the affected customers. In this communication the ISO must also provide the customer with the anticipated number of settlement points affected by the restatement of tariff charges. Notice will be provided via standard ISO communications processes and media. Otherwise, the rules for producing and presenting prior period adjustments as a result of customer reported disputes apply.

J4.3.5 Charges Relating to Preimplementation Periods

Section J8 of this code outlines the process for the ISO to initiate and process adjustments for preimplementation periods.

J5 Estimation Methodology

The ISO will use the following methods to determine transmission charges based on estimated usage for a settlement point:

1) In the event no metered data is available or the metering equipment has failed, the ISO will issue a transmission tariff file and statement of account based on the last billing period that was issued without estimation for a settlement point.
2) In the event the metered data is incomplete, the ISO will issue the transmission tariff file and statement of account based on the available data provided by the MDM to the ISO for a settlement point.
3) In the event the billing and settlement system in unable to produce a transmission tariff file and statement of account, the ISO will issue the current billing period transmission tariff file and statement of account based on the last billing period that was issued without estimation.

Where an estimated transmission tariff file and statement of account has been issued or a settlement point's transmission charges have been based on estimated usage, any adjustments required will be issued as per the scheduled settlement dates posted on the ISO Web site.

J6 Information Exchange Standards

J6.1 Purpose

This section of Appendix J outlines the information exchange standards, both electronic and nonelectronic, for the tariff billing business transactions to enable the ISO and its customers to exchange tariff billing data in a consistent and expedited manner. In addition to defining the format and content of each transaction, universal standards that govern all tariff billing transactions are specified.

The standards presented in the following sections are intended to be as specific as practical to facilitate data exchange between the ISO and its customers. At the same time, the EUB recognizes that problems and issues may arise ISO customers during system implementation and/or changes in market structure that would necessitate an adjustment to the standards. The EUB may consider revising these standards upon presentation of a documented need to do so by an ISO customer. The EUB may grant an ISO customer an exemption from these standards provided that the deviation from the standards are necessary and reasonable and the resulting effect on the operation of the market is minimal.

J6.2 Scope

The scope of this section of this code is limited to the tariff billing transactions listed in J3-1.

J6.3 Revisions

This code is subject to change by the EUB in consultation with ISO customers. ISO customers will be notified in advance of any revisions to the code. This communication will be followed by a versioned release of the code.

J6.4 Standards

This section of the code contains the standards that govern all tariff billing transactions. For consistency, this code will adopt the standards included in the Settlement System Code where appropriate.

J6.4.1 File-Naming Conventions

J6.4.1.1 Files Transmitted Electronically

All transactions of the same type for a period (usually 1 day) are to be placed in a single CSV (Comma Separated Value) formatted file. The file name must be unique across all files produced by the ISO or its customers. The standard file naming convention is

TXN_Sender_Recipient_YYYYMMDDHHMISS.CSV

where,

TXN:	three-letter abbreviation for the transaction name (e.g., Transmission Tariff Accept = TTA) or file name (e.g., Transmission Tariff File = TTF)
Sender:	ID of the sender (i.e., ISO ID of the ISO responsible for the settlement point(s) or Customer ID)
Recipient:	ID of the recipient (i.e., Customer ID of the ISO Customer receiving the file or the ISO ID))
YYYYMMDD:	Date the file was created (e.g., 2004-12-02)
HHMISS:	Time the file was created on a 24-hour clock (e.g., 192432)

J6.4.1.2 Files Available for Download

The standard file naming convention is

TXN_Sender_ YYYYMMDDHHMISS.CSV

where,

TXN:	three-letter abbreviation for the file name (e.g., Miscellaneous Determinant Description File = MDF)
Sender:	ID of the sender (i.e., ISO ID)
YYYYMMDD:	Date the file was created (e.g., 2004-12-02)
HHMISS:	Time the file was created on a 24-hour clock (e.g., 19:24:32)

J6.4.2 CSV File Format

1) Data in each file must be presented in CSV format.
2) Commas (,) may only be used a field separators. No data field may be populated with a comma (,).
3) Each field in the file format is a placeholder; therefore if the field has a [null] or empty value, it must be represented as ',,' in the .csv output file.

J6.4.3 Transmission Tariff File Record Production Sequence

The record production sequence of all data within each transmission tariff file is provided in Figure J6-1.

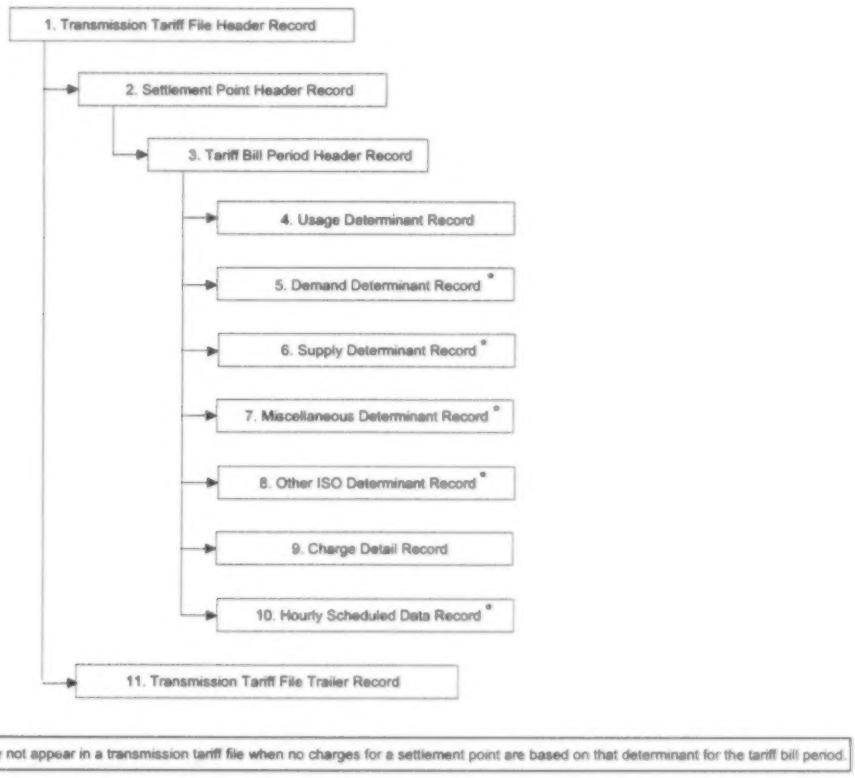

1. Transmission Tariff File Header Record
2. Settlement Point Header Record
3. Tariff Bill Period Header Record
4. Usage Determinant Record
5. Demand Determinant Record *
6. Supply Determinant Record *
7. Miscellaneous Determinant Record *
8. Other ISO Determinant Record *
9. Charge Detail Record
10. Hourly Scheduled Data Record *
11. Transmission Tariff File Trailer Record
* Record may not appear in a transmission tariff file when no charges for a settlement point are based on that determinant for the tariff bill period.

Figure J6-1. Transmission Tariff File Record Production Sequence

Each step below corresponds to a numbered item in Figure J6-1.

1) The transmission tariff file header record must be presented as the first record in a transmission tariff file.
2) The transmission tariff file header record must be followed by the presentation of a settlement point header record.
3) Each settlement point header record within the transmission tariff file must be followed by the presentation of a tariff bill period record. Within each settlement point header, tariff bill periods must be presented in ascending date sequence. In the event that a tariff bill period is being cancelled and rebilled, the cancelled tariff bill period (and its associated child records) must be presented before the rebilled tariff bill period.
4) Usage determinant record(s) must be presented following the tariff period header record and in ascending date sequence.
5) If demand determinants are applicable for a specific tariff bill period, the applicable demand determinant record(s) must be presented following the usage records and in ascending date sequence.
6) If supply determinants are applicable for a specific tariff bill period, the applicable supply determinant record(s) must be presented following the usage and demand records, when available, and in ascending date sequence.
7) If miscellaneous determinants are applicable for a specific tariff bill period, the applicable miscellaneous determinant record(s) must be presented following the usage, demand and supply determinant records, when available, and in ascending date sequence.
8) If other ISO determinants are applicable for a specific tariff bill period, the applicable determinant record(s) must be presented following the usage, demand, supply and miscellaneous determinant records, when available, and in ascending date sequence.
9) If charges are applicable for a specific tariff bill period, the applicable charge(s) must be presented following the usage, demand, supply, miscellaneous and other ISO determinant records, when available, and in ascending date sequence.
10) The transmission tariff file trailer record must be presented as the last record in a transmission tariff file.

J6.4.4 Optional Fields

The optional fields specified in all tariff billing transactions are applicable to the party generating the transaction.

J6.4.5 Data-type definition

The following sections describe the various data types used in the tariff billing transactions.

J6.4.5.1 Char(x)

Fixed length Character field that must be x characters in length.

For example, Char(3) is 'ABC'.

J6.4.5.2 Varchar(x)

Variable length Character field that can be a maximum of x characters in length.

For example, Varchar(3) is 'A','AB', or 'ABC'.

J6.4.5.3 Number(p,s)

Number field with p digits of precision and s digits of scale to the right of the decimal.

For example, 123456.78 is Number(8,2) and .0012 is Number(4,4).

J6.4.5.4 Date

Date field that requires a specified date in the following standard format:

YYYYMMDD

where,

YYYY: year with century (e.g., 2004)
MM: two-digit month (01 - 12)
DD: two-digit day (01 - 31)

J6.4.5.5 Datetime

Datetime field that requires a specified date and time in the following standard format:

YYYYMMDDHHMISS

where,

YYYY: year with century (e.g., 2004)
MM: two-digit month (01 - 12)
DD: two-digit day (01 - 31)
HH: two-digit hour on a 24 hour clock (00 - 24)
MI: two-digit minute (00 - 59)
SS: two-digit second (00 - 59)

J6.4.5.6 Negative Numbers

When a numeric value is to be represented as a negative, the number must be shown with the minus sign '-' preceding the value.

For example, negative 123.45 must be shown as -123.45.

J6.5 Standard Codes

The standard codes defined in this section are limited to those transactions governed solely by this code. In the production of transactions governed by this code, market participants will also need to rely on standard codes governed by the SSC and other authorities, as well as the ISO. For completeness, this section provides reference to these other authorities where appropriate.

J6.5.1 Record Type Code

This is a two-character code representing record type.

Table J6-1. Record Type Codes

Table Ref ID	Record Type Code	Record Type Name
1	FH	Transmission Tariff File header record
2	SH	Settlement Point header record
3	TH	Tariff bill period header record
4	DU	Determinant - measured usage record
5	DD	Determinant - demand record
6	DS	Determinant – supply record
7	DM	Determinant - miscellaneous record
8	DO	Determinant – other ISO determinant record
9	CH	Tariff charge record

Table Ref ID	Record Type Code	Record Type Name
10	SD	Hourly Scheduled Data record
11	FT	Transmission Tariff File trailer record

J6.5.2 ISO ID

This code will adopt the content and formatting convention of the SSC with respect to the provision ISO ID information in transaction fields requiring ISO identification.

J6.5.3 Settlement Point Production Reason Code

A five-digit code representing Settlement Point Production Reason.

Table J6-2. Settlement Point Production Reason Codes

Table Ref ID	Settlement Point Production Reason Code	Settlement Point Production Reason Code Name
1	12000	Termination of Contract
2	12020	Regular bill cycle
3	12030	Missing settlement point (previously withheld from original transmission tariff file)
4	12040	Accepted tariff billing dispute
5	12070	Other

Hierarchy Rules
Settlement point production reason codes must be applied according to the hierarchy dictated in Table J6-2. Where settlement production reason codes coincide, the ISO must report the settlement point production reason code that precedes other coinciding settlement point production reason codes.

J6.5.4 Cancel Reason Code

A five-digit code representing a reason for canceling a tariff charge.

Table J6-3. Cancel Reason Codes

Table Ref ID	Reason Code	Reason Code Name
1	13000	Preimplementation charge correction
2	13010	Settlement point ownership correction
3	13020	Rate correction
4	13030	Estimate replacement with actual (true-up following estimate by tariff billing function)
5	13050	Usage estimation revision
6	13060	Demand, supply, miscellaneous or other ISO determinant correction
7	13080	Resolution of system error
8	13100	Interim settlement
9	13110	Final settlement
10	13120	Contract changes
11	13130	AEUB Directive
12	13090	Other

Hierarchy Rules
Cancel reason codes must be applied according to the hierarchy dictated in Table J6-3. Where cancel reason codes coincide, the ISO must report the cancel reason code that precedes other coinciding cancel reasons.

J6.5.5 Tariff Rate Code

The ISO will maintain its respective tariff rate codes via a Tariff Rate Code File (TRC) and provide this to the EUB for publication, to fulfill the requirements of the Tariff Rate Code field in the tariff bill period header record of the transmission tariff file. The contents of the Tariff Rate Code File are shown in Table J6-4

Table J6-4. Tariff Rate Code File (TRC) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal the ISO ID as defined in Schedule B of the SSC.
2	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify the ISO's approved tariff.
4	Tariff Rate Code Description	Varchar(50)	MANDATORY – Description of the tariff rate code.
5	Effective Date	Date format	MANDATORY FIELD – Date upon which the Tariff Rate Code applies to tariff charges.
6	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Tariff Rate Code is no longer applied to current tariff charges. If the Tariff Rate Code has expired, then this field is MANDATORY.

A single current version of the Tariff Rate Code File will be published on the EUB Web site at any given time.

J6.5.6 Demand Type Code

A five-digit code representing Demand Type.

Table J6-5. Demand Type Codes

Table Ref ID	Demand Type Code	Demand Type Code Name
1	14010	Transmission Billing
2	14020	Transmission Contract
3	14030	Deemed
4	14040	Rate Minimum
5	14050	Transmission Ratchet
6	14060	DOS Request
7	14070	Actual Highest Metered Demand
8	14080	Tariff Highest Metered Demand
9	14090	Metered

J6.5.7 Demand UOM

A maximum five-character code representing Demand UOM.

Table J6-6. Demand UOM Codes

Table Ref ID	Demand UOM Code	Demand UOM Code Name
1	MW	Megawatt
2	MWH	Megawatt hour
3	MVAR	Megavolt Ampere Reactive
4	MVARH	Megavolt Ampere Reactive Hour
5	MVA	Megavolt Ampere

J6.5.8 Supply Type Code

A five-digit code representing Supply Type.

Table J6-7. Supply Type Codes

Table Ref ID	Supply Type Code	Supply Type Code Name
1	15010	Transmission Billing
2	15020	Transmission Contract
3	15030	Maximum Continuous Rating Value
4	15040	Rate Minimum

J6.5.9 Supply UOM

A maximum five-character code representing Supply UOM.

Table J6-8. Supply UOM Codes

Table Ref ID	Demand UOM Code	Demand UOM Code Name
1	MW	Megawatt
2	MWH	Megawatt hour
3	MVAR	Megavolt Ampere Reactive
4	MVARH	Megavolt Ampere Reactive Hour
5	MVA	Megalvolt Ampere

J6.5.10 Unit Quantity UOM and Billed Quantity UOM

A maximum four-character code representing unit of measure for unit quantity and billed quantity.

Table J6-9. Unit Quantity UOM and Billed Quantity UOM

Table Ref ID	Unit Quantity UOM Code	Measurement System	Unit Quantity UOM Code Name
1	CALC	Other	Calculated
2	FLAT	Other	Flat Fee
3	HE	Time	Hour Ending
4	HR	Time	Hour
5	HZ	Metric	Hertz
6	MVar	Metric	MegaWatt Apmere Reactive

Table Ref ID	Unit Quantity UOM Code	Measurement System	Unit Quantity UOM Code Name
7	MW	Metric	MegaWatt
8	MWH	Metric	MegaWatt Hour
9	PERC	Other	Percent
10	BC	Other	Billing Capacity
11	MON	Time	Month
12	INT	Other	Interpolated
13	MVa	Metric	MegaVolt Ampere
14	BFLAG	Other	Boolean

J6.5.11 Other ISO Determinant Code

The ISO will maintain its respective other ISO determinant codes via an Other ISO Determinant Code File (ODF) and provide this to the EUB for publication, to fulfill the requirements of the transmission tariff file Other ISO Determinant Code field. The contents of the Other ISO Determinant File are shown in Table J6-10.

Table J6-10. Other ISO Determinant File (ODF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal the ISO ID as defined in Schedule B of the SSC.
2	Miscellaneous Determinant Code	Varchar (4)	MANDATORY FIELD –Code to represent an other ISO determinant disclosed in a transmission tariff file.
3	Miscellaneous Determinant Description	Varchar (40)	MANDATORY - Description of the Other ISO Determinant disclosed in a transmission tariff file.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Other ISO Determinant Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Other ISO Determinant Code is no longer applied to current tariff charges. If the Other ISO Determinant Code has expired, then this field is MANDATORY.

A single current version of the Other ISO Determinant Code File will be published on the EUB Web site at any given time.

J6.5.12 Miscellaneous Determinant Description

The ISO will maintain its respective miscellaneous determinant codes via a Miscellaneous Determinant Code File (MDF) and provide this to the EUB for publication, to fulfill the requirements of the transmission tariff file Miscellaneous Determinant Code field. The contents of the Miscellaneous Determinant File are shown in Table J6-11.

Table J6-11. Miscellaneous Determinant Code File (MDF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal the ISO ID as defined in Schedule B of the SSC.

Element Sequence	Element (in sequence)	Data Type/Size	Description
2	Miscellaneous Determinant Code	Varchar (4)	MANDATORY FIELD – Code to represent a miscellaneous determinant disclosed in a transmission tariff file.
3	Miscellaneous Determinant Description	Varchar (40)	MANDATORY FIELD - Description of the Miscellaneous Determinant disclosed in a transmission tariff file.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Miscellaneous Determinant Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Miscellaneous Determinant Code is no longer applied to current tariff charges. If the Miscellaneous Determinant Code has expired, then this field is MANDATORY.

A single current version of the Miscellaneous Determinant Code File (MDF) will be published on the EUB Web site at any given time.

J6.5.13 Tariff Cross Reference Code

The ISO will maintain its respective tariff cross-reference codes via a Tariff Cross Reference Code File (TRF) and provide this to the EUB for publication, to fulfill the requirements of the Tariff Cross Reference Code field in the tariff charge record of the transmission tariff file. The contents of the Tariff Cross Reference Code File are shown in Table J6-12

Table J6-12. Tariff Cross Reference Code File (TRF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal the ISO ID as defined in Schedule B of the SSC.
2	Tariff Rate Code	Varchar(9)	MANDATORY FIELD – Code to identify the ISO's approved tariff.
3	Tariff Cross Reference Code	Varchar(9)	MANDATORY FIELD – Code to identify the ISO's tariff component (may be equivalent to the tariff rate code.)
4	Tariff Cross Reference Code Description	Varchar(50)	MANDATORY – Description of the tariff cross reference code.
5	Effective Date	Date format	MANDATORY FIELD – Date upon which the Tariff Cross Reference Code applies to tariff charges.
6	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Tariff Cross Reference Code is no longer applied to current tariff charges. If the tariff Cross Reference Code has expired, then this field is MANDATORY.

A single current version of the Tariff Cross Reference Code File will be published on the EUB Web site at any given time.

J6.5.14 Component Category Code

A five-digit code representing Component Category.

Table J6-13. Component Category Codes

Table Ref ID	Component Category Code	Component Category Code Name
1	16001	Transmission
2	16002	Transaction Fees
3	16003	Riders

J6.5.15 Component Basis Code

A single-character code representing Component Basis.

Table J6-14. Component Basis Codes

Table Ref ID	Component Basis Code	Component Basis Code Name
1	D	Demand
2	E	Energy
3	F	Fixed
4	P	Percentage (%) Based
5	S	Supply

J6.5.16 Component Type Code

The ISO will maintain its respective component type codes via a Component Type Code File (CTF) and provide this to the EUB for publication, to fulfill the requirements of the transmission tariff file Component Type Code field. The contents of the Component Type Code File are shown in Table J6-15.

Table J6-15. Component Type Code File (CTF) Content

Element Sequence	Element (in sequence)	Data Type/Size	Description
1	ISO ID	ISO ID Format	MANDATORY FIELD – Unique identifier for the sender. This identifier must equal that of the ISO creating the file and must adhere to the rules as defined in Schedule B of the SSC.
2	Component Type Code	Varchar(4)	MANDATORY FIELD – Code to represent the ISO's charge component.
3	Component Type Code Description	Varchar(50)	MANDATORY – Description of the component type code.
4	Effective Date	Date format	MANDATORY FIELD – Date upon which the Component Type Code applies to tariff charges.
5	Expiry Date	Date format	CONDITIONAL FIELD – Date beyond which the Tariff Cross Reference Code is no longer applied to current tariff charges. If the tariff Cross Reference Code has expired, then this field is MANDATORY.

A single current version of the Component Type Code File (CTF) will be published on the EUB Web site at any given time.

J6.5.17 Transmission Tariff File (TTF) Rejection Code

A five-digit code representing a Transmission Tariff File rejection code.

Table J6-16. Transmission Tariff File Rejection Codes

Table Ref ID	TBF Rejection Code	TBF Rejection Code Name
1	17010	Invalid File Naming Convention
2	17020	Invalid File Format
3	17030	Invalid Record Production Sequence
4	17040	Failed Mandatory Field Logic
5	17050	Failed Conditional Field Logic
6	17060	Invalid Standard Code
7	17070	Non-unique Record ID
8	17080	Invalid Parent ID
9	17090	Invalid Customer ID
10	17100	Invalid ISO ID
11	17110	Invalid Date Logic
12	17120	Future Dates Found
13	17130	Misalignment of Current Billing Period and Tariff Bill Period(s)
14	17140	Failed Cancel Indicator Logic
15	17150	Tariff Bill Period Overlap (within Transmission Tariff File)
16	17160	Misalignment of Usage Period(s) with Tariff Bill Period
17	17170	Usage Period Overlap (within a Tariff Bill Period)
18	17180	Usage Period Gap (within a Tariff Bill Period)
19	17190	Misalignment of Demand Period(s) with Tariff Bill Period
20	17200	Demand Period Overlap (within a Tariff Bill Period)
21	17210	Demand Period Gap (within a Tariff Bill Period)
22	17220	Misalignment of Supply Period(s) with Tariff Bill Period
23	17230	Supply Period Overlap (within a Tariff Bill Period)
24	17240	Supply Period Gap (within a Tariff Bill Period)
22	17250	Misalignment of Charge Period(s) with Tariff Bill Period
23	17260	Charge Period Overlap (within a Tariff Bill Period)
24	17270	Charge Period Gap (within a Tariff Bill Period)
25	17280	Invalid Date Created (File Header)
26	17290	Invalid Usage Total (Settlement Point Header)
27	17300	Invalid Charge Total (Settlement Point Header)
29	17310	Invalid Usage Total (Tariff Bill Period Header)
30	17320	Invalid Charge Total (Tariff Bill Period Header)
31	17330	Invalid File Record Count (File Trailer)
32	17340	Invalid Charge Total (File Trailer)
33	17350	Missing Billing Demand Determinant Record
34	17360	Missing Usage Determinant Record
36	17370	Invalid Calculated Values
38	17380	Invalid Child Record Values

Table Ref ID	TBF Rejection Code	TBF Rejection Code Name
39	17390	Invalid Data Type
40	17400	Tariff Bill Period Gap (within current billing period)

J6.5.18 Dispute Code

A five-digit code representing a transmission tariff file dispute code.

Table J6-17. Dispute Codes

Table Ref ID	Dispute Code	Dispute Code Name
1	18010	Non-unique Record ID
2	18020	Failed Settlement Point Ownership
3	18030	Tariff Bill Period Gap (with previous Transmission Tariff Files)
4	18040	Tariff Bill Period Overlap (with previous Transmission Tariff Files)
5	18060	Failed Cancel Reference Logic
6	18070	Failed Cancel Value Logic

J7 Approach to Presenting Adjustments for Preimplementation Charges

The ISO will present any adjustment for preimplementation charges in the transmission tariff file format. Where Record IDs did not exist in the preimplemention billing engine, they will be populated for prior periods during conversion to the new billing engine.

J8 Cancel/Rebill Methodology

The ISO will perform cancel/rebills based on ISO Tariff requirements for only the affected periods from the point of error forward. The ISO will issue cancel/rebills based on the settlement points affected. Where no adjustment is required for a specific settlement point, the settlement point will not appear as a cancel/rebill during the current period.